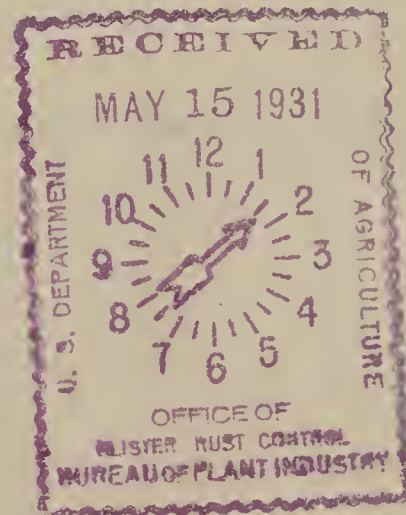


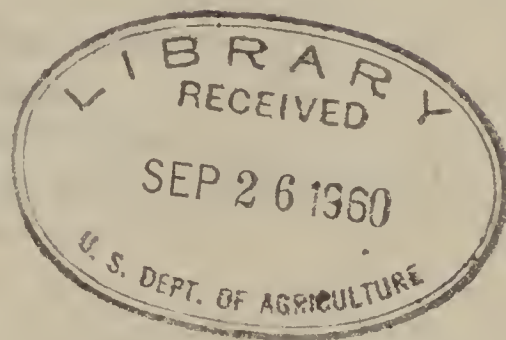
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Graphs by Pierce on Educational Work and Ribes Eradication
summaries based on this report filed 86.10 (1930)



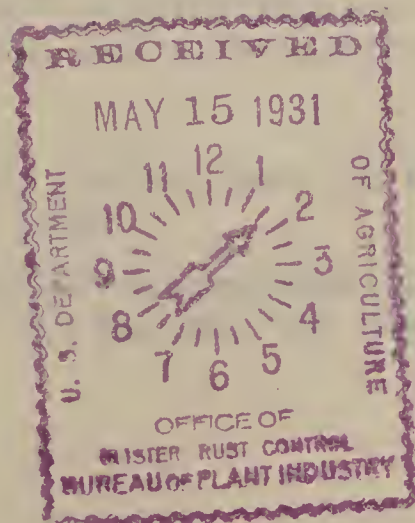
REPORT OF
COOPERATIVE BLISTER RUST CONTROL WORK
IN THE EASTERN STATES
DURING 1930.



By

E. C. Filler and K. K. Stimson

Boston, Mass.



May 1, 1931.

INDEX

SUMMARY OF BLISTER RUST CONTROL ACTIVITIES IN THE NORTHEASTERN AND LAKE STATES DURING THE PERIOD 1918-1930, INCLUSIVE.....	Pages 1-22
Policy.....	" 1-2
Scope of problem (white pine - Ribes - infection).....	" 2-7
Results accomplished in blister rust control in Eastern States.....	" 8-22
<u>New England and New York</u>	
Regular control work.....	" 8-13
General statement.....	Page 8
Cooperation.....	" 8
Education.....	" 9
Service.....	" 9
Control work by individuals and towns.....	Pages 9-10
State work in eradicating Ribes.....	" 10-11
Protection of white pine plantations.....	Page 11
Status of blister rust control work - December 31, 1930.....	Pages 12-13
Special control work.....	" 14-18
Nursery sanitation.....	" 14-16
Black currant eradication.....	Page 16
Surveys and investigations.....	Pages 16-18
<u>Pennsylvania, New Jersey and Lake States</u>	
Regular control work.....	" 18-20
General statement.....	Page 18
Cooperation.....	" 19
Control work by individuals and towns.....	" 19
State work in eradicating Ribes.....	" 19
Status of blister rust control work - December 31, 1930.....	" 20
Special control work.....	Pages 21-22
Nursery sanitation.....	" 21-22
Black currant eradication.....	Page 22
Field studies and investigations.....	" 22
 COOPERATIVE BLISTER RUST CONTROL WORK IN NEW ENGLAND AND AND NEW YORK DURING 1930.....	
Summary of results accomplished in blister rust control in New England and New York during 1930.....	" 23-24

DETAILED SUMMARY AND ANALYSIS, BY STATES, OF COOPERATIVE CONTROL ACTIVITIES IN NEW ENGLAND AND NEW YORK DURING 1930.....	Pages	25-48
Education.....	"	25-26
Service.....	Page	27
Total summary of eradication work.....	Pages	28-29
Detailed summary and analysis, by states, of the project Ribes eradication.....	"	30-48
I. Initial and re-eradication work.....	"	30-37
A. Individual cooperation.....	"	30-32
B. Town cooperation.....	"	33-34
C. State work on individuals' lands.....	Page	35
D. State work on public lands.....	"	36
E. Nursery sanitation.....	"	37
II. Initial control work.....	Pages	38-43
Summary of total initial Ribes eradication work.....	Page	38
A. Individual cooperation.....	"	39
B. Town cooperation.....	Pages	40-41
C. State work on individuals' lands.....	Page	42
D. State work on public lands.....	"	42
E. Nursery sanitation.....	"	43
III. Re-eradication work.....	Pages	44-48
Summary of total re-eradication work.....	Page	44
A. Individual cooperation.....	"	45
B. Town cooperation.....	"	46
C. State work on individuals' lands.....	"	47
D. State work on public lands.....	"	47
E. Nursery sanitation.....	"	48

STATISTICAL REPORTS OF COOPERATIVE RIBES ERADICATION WORK IN NEW ENGLAND AND NEW YORK DURING 1930.....	Pages	49-51
1. Initial Ribes eradication work.....	Page	49
2. Re-eradication work.....	"	50
3. Initial and re-eradication work.....	"	51

CLASSIFICATION OF COOPERATIVE BLISTER RUST CONTROL FUNDS USED ON "RIBES ERADICATION" IN NEW ENGLAND AND NEW YORK DURING 1930.	"	52
--	---	----

SUMMARY OF SPECIAL BLACK CURRANT ERADICATION PROJECTS CONDUCTED IN NEW ENGLAND AND NEW YORK DURING 1930 (Includes Michigan data).....	"	53
---	---	----

STATE COMPENSATION FOR CULTIVATED RIBES DESTROYED IN NEW ENGLAND AND NEW YORK DURING 1930.....	Page	54
PERCENT OF TIME SPENT ON EACH ACTIVITY BY AVERAGE PERMANENT AGENT IN NEW ENGLAND AND NEW YORK DURING 1930.....	"	55
PERSONNEL EMPLOYED ON COOPERATIVE BLISTER RUST CONTROL WORK IN NEW ENGLAND AND NEW YORK DURING 1930.....	"	56
TOTAL STATE AND FEDERAL EXPENDITURES, BY PROJECTS, IN NEW ENGLAND AND NEW YORK DURING 1930.....	Pages	57-64
SUMMARY OF COOPERATIVE RIBES ERADICATION WORK CONDUCTED IN PENNSYLVANIA AND LAKE STATES DURING 1930.....	Page	65
STATISTICAL REPORTS OF COOPERATIVE RIBES ERADICATION WORK IN PENNSYLVANIA AND LAKE STATES DURING 1930.....	Pages	66-68
1. Initial Ribes eradication work.....	Page	66
2. Re-eradication work.....	"	67
3. Initial and re-eradication work.....	"	68
TOTAL STATE AND FEDERAL EXPENDITURES, BY PROJECTS, IN LAKE STATES PENNSYLVANIA AND NEW JERSEY DURING CALENDAR YEAR 1930.....	Pages	69-73a
SUMMARY OF FEDERAL RIBES ERADICATION WORK ON PUBLIC LANDS IN EASTERN STATES DURING 1930.....	Page	74
SUMMARY OF ALL RIBES ERADICATION WORK IN EASTERN STATES DURING 1930.....	"	75
SUMMARY, BY STATES, OF COOPERATIVE BLISTER RUST CONTROL ACTIVITIES IN THE NORTHEASTERN AND LAKE STATES DURING THE PERIOD 1918-1930, INCLUSIVE.....	Pages	76-113
Maine.....	"	76-78
New Hampshire.....	"	79-81
Vermont.....	"	82-84
Massachusetts.....	"	85-88
Rhode Island.....	"	89-90
Connecticut.....	"	91-93
New York.....	"	94-97
New Jersey.....	"	98-99
Pennsylvania.....	"	100-104
Michigan.....	"	105-107
Wisconsin.....	"	108-110
Minnesota.....	"	111-113

SPECIAL SUMMARIES OF CONTROL ACTIVITIES IN EASTERN STATES

DURING PERIOD 1922-1930, INCLUSIVE.....Pages 114-127

Education.....	Page	114
Service.....	"	114
Town and individual cooperation (By years and states).....	"	115
Ribes eradication.....	Pages	116-121
Total.....	Page	116
Individual cooperation.....	"	117
Town cooperation.....	"	118
State work on individuals' lands.....	"	119
State work on public lands.....	"	120
Nursery sanitation.....	"	121
Re-eradication.....	"	122
Special black currant eradication (Not included in eradication summaries).....	"	123
Nursery sanitation (Not included in eradication summaries)..	"	124
Ribes eradication work on Government-owned lands (Not included in other eradication summaries).....	"	125
Ribes compensation (By years and states).....	"	126
Total state and federal expenditures.....	"	127

SUMMARY, BY STATES, OF TOWN AND INDIVIDUAL COOPERATION IN

NEW ENGLAND AND NEW YORK DURING PERIOD 1917-1930, INCLUSIVE....Pages 128-135

SPECIAL TOTAL SUMMARIES OF RIBES ERADICATION WORK IN EASTERN

STATES.....	"	136-138
New England and New York, by years, 1917-1930,inclusive.....	Page	136
New England and New York, by states and years, 1918-1930, inclusive.....	"	137
Pennsylvania and Lake States, by states and years, 1918-1930, inclusive.....	"	138

FOREWORD

This report is based on a summarization and analysis of the yearly BRC-5 forms submitted by the state leaders. and on general observations made by the federal supervisor. It summarizes the control work for all years, and especially gives the main facts regarding the 1930 activities. No attempt has been made to discuss future plans in this report. Such plans, particularly for 1931, have been prepared for each cooperating state. As copies of these plans have been furnished the state and federal offices, it does not appear advisable to repeat this information here.

SUMMARY OF BLISTER RUST CONTROL ACTIVITIES IN THE NORTHEASTERN
AND LAKE STATES DURING THE PERIOD 1918 to 1930, INCLUSIVE.

Policy

During the period 1918 to 1921 inclusive, the Federal Government cooperated with the states, on a dollar for dollar basis, in experimental work to control blister rust. This work was conducted in each state under a cooperative agreement between the United States Department of Agriculture and the authorized state regulatory agency, the latter usually being the state forestry department. The control work was directed by the state officials under the general supervision of the Government, which paid a part of the Ribes eradication costs.

In 1922, a new program to secure the general application of control measures was initiated by the United States Department of Agriculture, the state regulatory agencies and the state extension services. This program has been in operation since that time. The object of this cooperative work is to accomplish the control of blister rust by furnishing pine owners the expert advice, leadership, and supervision needed to secure prompt and effective local eradication of Ribes in the pine growing regions. The Government is primarily responsible for furnishing each cooperating state with one or more trained agents, who function as leaders in control work. In addition, the Government conducts experiments and demonstrations to improve control practices, obtains data on spread of the rust, and gives general supervision and regional leadership. All federal cooperative expenditures are offset by state expenditures of at least equal amount. The cooperating state regulatory agencies are responsible for the following: (1) the administrative direction of the cooperative employees furnished by the Government; (2) Cooperating with counties, townships, associations, and individuals in control work; (3) providing adequate supervision and checking of local eradication of Ribes to secure effective destruction of such bushes; and (4), enforcing any necessary regulatory measures. The state extension services cooperate, wherever practicable, by making available such facilities of their organizations as will promote the control program.

In New England and New York, this program has been in successful operation since its adoption in 1922; however, in the Lake States, Pennsylvania and New Jersey, the control activities were not organized on this basis until 1929. There are several reasons for the restriction of the control activities outside New England and New York. The principal ones are the few original introductions of the disease and its relatively slow establishment and spread, the scattered distribution of the white pine, the passive public interest in forestry and lack of adequate state appropriations for control work. Hence, up to 1929, cooperative activities outside New England and New York have been limited to a small amount of scouting and eradication of new centers of infection and to investigational and educational work. The natural spread of the disease during the past two years has greatly increased the infected area in

these less progressive states. As a result, definite control programs have been adopted in each of these states and a limited amount of control work performed.

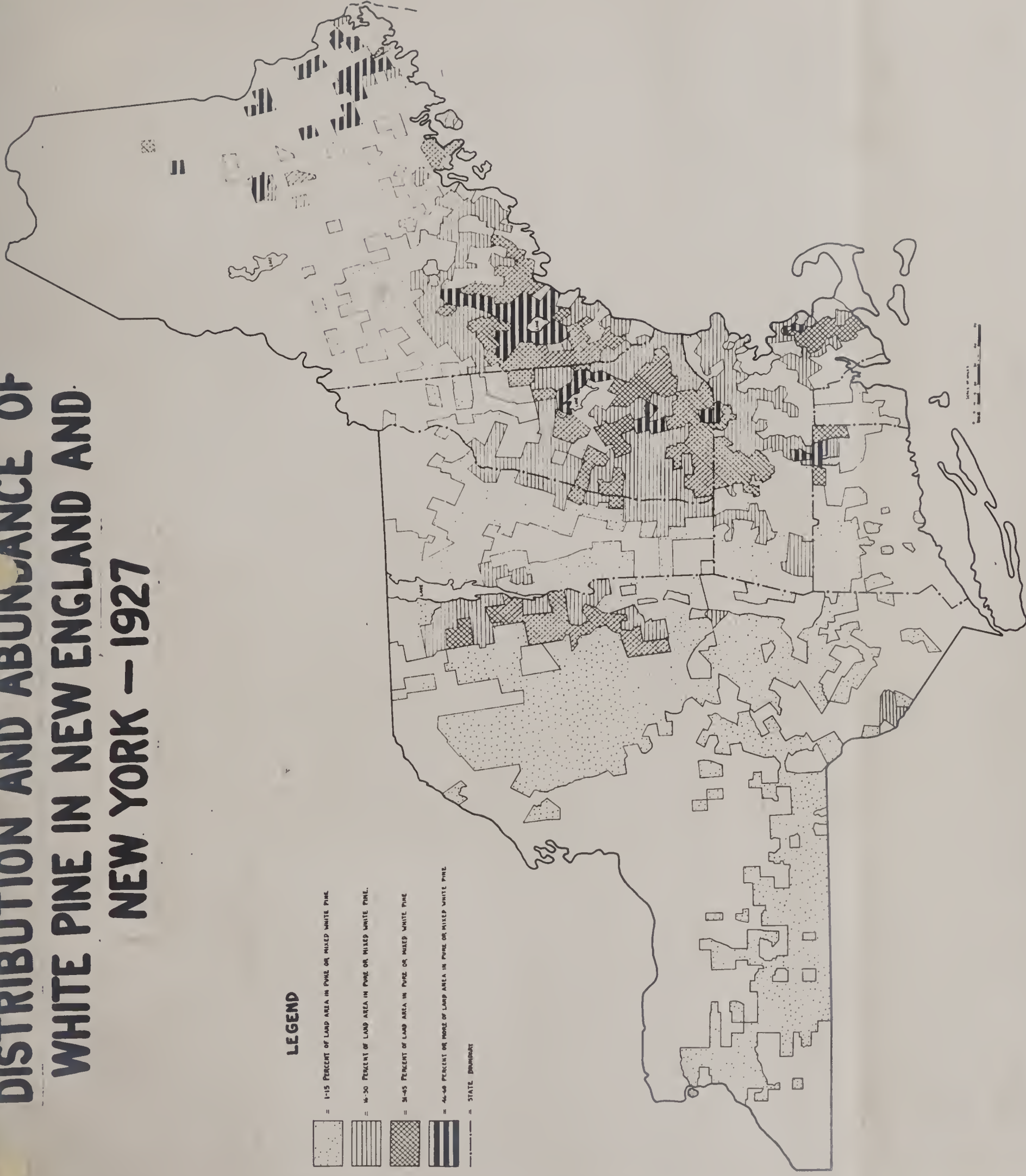
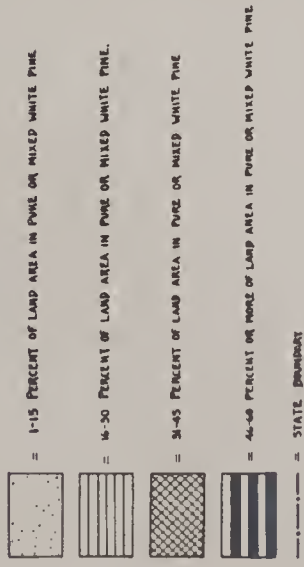
The Scope Of The Problem

White Pine

According to a forest type survey made by our office in 1927, there are 8,285,352 acres of pine land in New England and New York classified as follows: pure pine, (80 percent or over) 2,714,182 acres; mixed pine (21 -79 percent pine in mixture) 2,791,833 acres; and pine restocking in types other than pine, 2,779,337 acres. Of the total pine acreage, 75.8 percent is located in the three states of Maine, New Hampshire and New York. A preliminary survey in the states of Minnesota, Wisconsin, Michigan and Pennsylvania shows a total of 1,730,461 acres of white pine growth. However, only 597,910 acres of this amount contain pure pine or mixed pine above thirty percent. In addition, throughout the Northeastern and Lake States, there are vast areas of mixed growth with pine stocking of less than 20 percent. Also, millions of white pine are being planted each year. In New Jersey, the white pine is confined to ornamental and forest plantings and to small scattered areas of natural growth in the northern part of the state. The following map shows the amount and distribution of pure and mixed (30-79%) white pine in the township units of New England and New York.

DISTRIBUTION AND ABUNDANCE OF WHITE PINE IN NEW ENGLAND AND NEW YORK — 1927

LEGEND



Designed by E.C. Filler
Drawn by William Clave - 1930.

Ribes

Wild Ribes occur more or less generally distributed throughout the white pine region of the eastern states, but vary locally as to site, species, size and abundance. Nine indigenous species have been encountered in control work, four being gooseberries and five currants, exclusive of Ribes vulgare which is considered an escaped cultivated red currant. In certain sites, the Ribes number 100 or more per acre, and in others are entirely absent. The aggregate, however, represents many millions of such bushes, as evidenced by the eradication of 82,245,511 wild Ribes in New England and New York during the period 1918 to 1930 inclusive. It has been determined that shade is an important factor in eliminating and suppressing Ribes, that Ribes seed remain dormant and viable in the duff for years, and that disturbance of the duff by logging, fire, or animals favors the germination of such dormant seeds. Therefore, Ribes are found most abundant in open situations, such as recently cut over or burned areas, pastures, swamps, fence rows, etc. The cultivated Ribes problem is indicated by the 608,246 cultivated bushes that have been destroyed in applying control measures since 1918. The amount and distribution of wild Ribes per acre, based on town units, is indicated on the following map.

DISTRIBUTION AND ABUNDANCE OF WILD RIBES IN NEW ENGLAND AND NEW YORK

BASIS

NUMBER OF WILD RIBES PER ACRE OF LAND AREA* IN EACH TOWN

LEGEND

LESS THAN ONE WILD RIBES PER ACRE

1-10 WILD RIBES PER ACRE

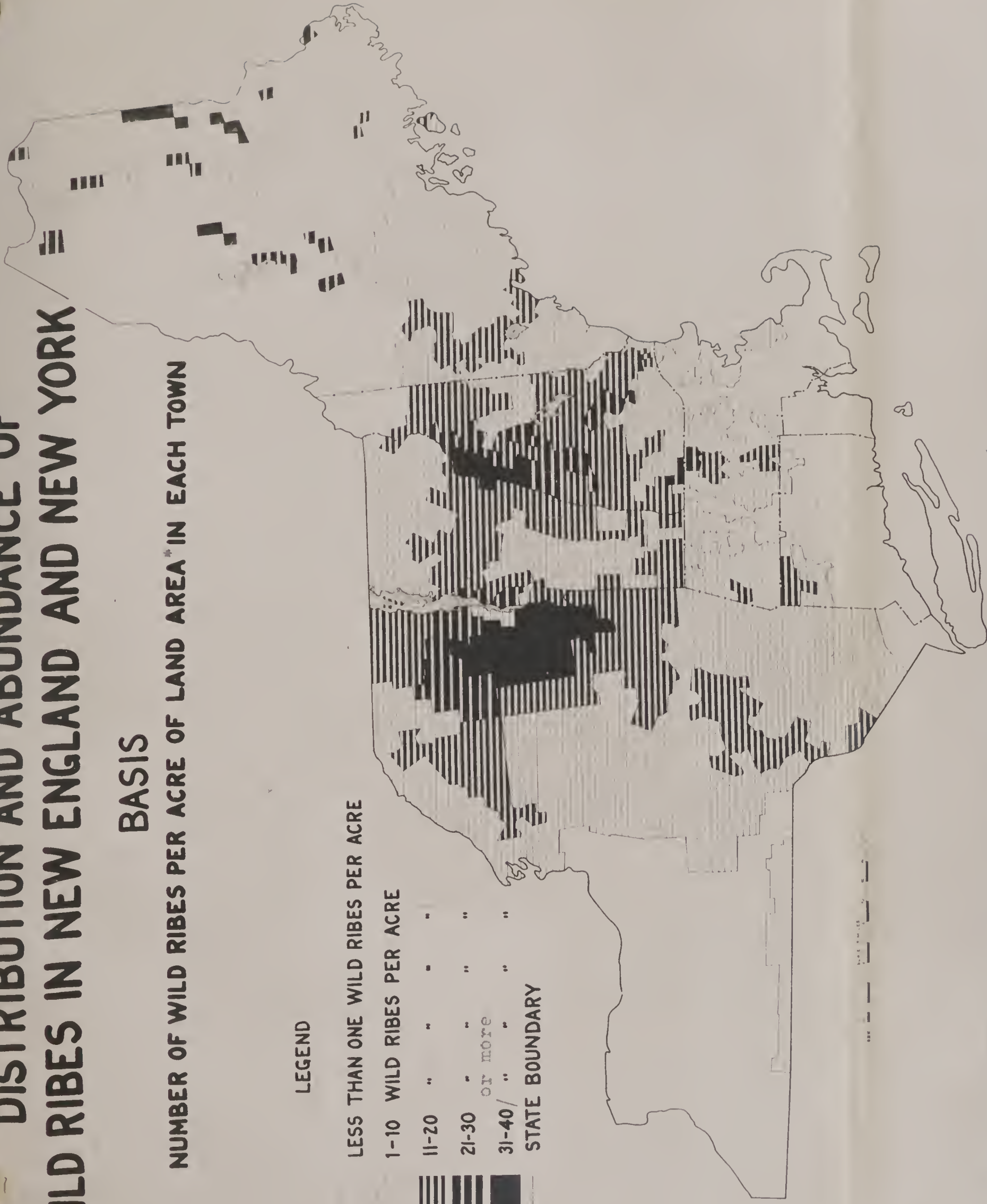
11-20 " " "

21-30 " " "

OR MORE

31-40/ " " "

STATE BOUNDARY



*Acres of residential sections not included in land area.

Infection

Blister rust infection is general throughout the commercial white pine range of Northeastern and Lake States. Over extensive areas, from 1 to 20 percent or more of the pines are infected; and in many local pine tracts, from 50 to 100 percent of the trees are dead or dying. The amount of disease varies considerably in different localities, and is directly affected by such factors as the number of original infection centers caused by the planting of imported diseased pine, the distribution and amount of native pine, association of pine and Ribes, abundance of Ribes, climatic conditions, and the application of control measures. In Essex and Warren Counties, New York, and in the upper Connecticut River valley region, where Ribes are generally abundant, pine infection is also heaviest; 11 to 20 percent or more of the trees being diseased. In southern New England and in most southern New York, less than one percent of the pines are infected, except in a few limited areas. The distribution and amount of disease based on township units in New England and New York is shown by the following map. A direct correlation between pine infection and abundance of Ribes is apparent when this map is compared with the Ribes map on page 5.

During 1920, strip line infection surveys were made in New Hampshire, Maine, Vermont, New York and Massachusetts. The pines on rod wide strips, totaling 165.9 miles in length, were examined. A total of 42,274 pines were inspected and 10.2 percent were found diseased. In addition, 256 plots, totaling 71.8 acres, were laid out adjacent to the strips; 27.7 percent of the 23,461 pines on these plots were infected. These data may be regarded as conservative of conditions in unprotected areas where Ribes are generally distributed; as since 1920, the results of the heavy wave of infection in 1919 have become increasingly conspicuous. Another heavy infection wave occurred in 1925.

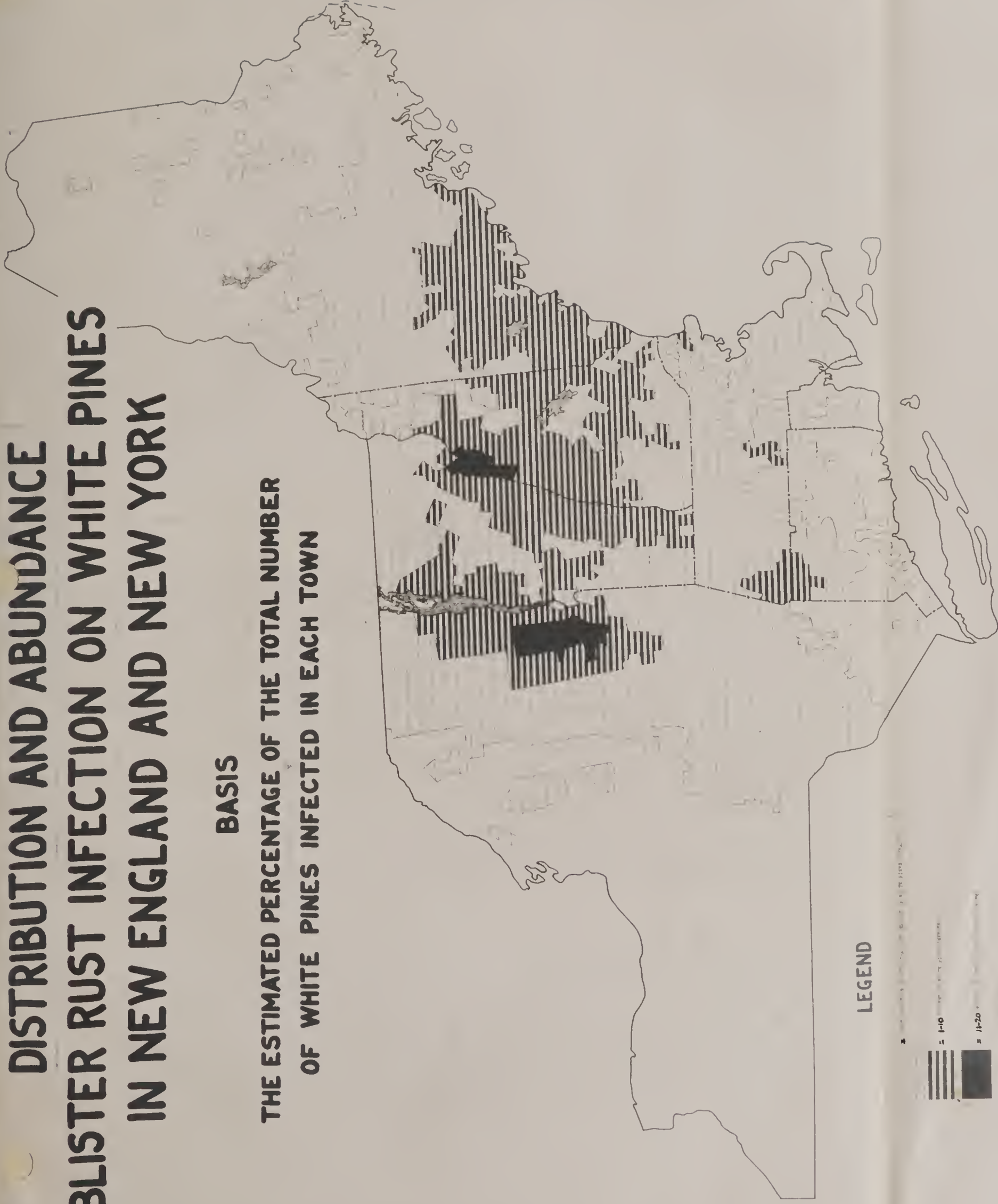
Additional infection information was secured during 1925-1927 by the blister rust agents. Studies made by examining the first ten infected pines found on each of 415 representative pine areas in New England and New York showed cankers originated on the 4,150 infected pines as follows: Total cankers 10,428, of which 22 percent originated up to 1917, 43 percent during 1918-1921, and 35 percent since 1921. The percentage of infection since 1921 is probably too low to be representative of true condition. Many of the 1925 cankers were probably not visible at the time the study was made; also, in selecting infected trees, the agents naturally picked out specimens readily visible, rather than trees containing only incipient cankers.

The disease has been established in Pennsylvania and the Lake States about as long as in New England and New York, but due chiefly to fewer importations of infected stock and localization of native pine areas, it has not developed and spread as rapidly as in the latter section. However, during recent years, the amount and extent of the disease in Pennsylvania and the Lake States has increased at an alarming rate and the need for general application of control measures has become most urgent.

DISTRIBUTION AND ABUNDANCE BLISTER RUST INFECTION ON WHITE PINES IN NEW ENGLAND AND NEW YORK

BASIS

THE ESTIMATED PERCENTAGE OF THE TOTAL NUMBER
OF WHITE PINES INFECTED IN EACH TOWN



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Results Accomplished In Blister Rust Control In Eastern States

New England and New York

Regular Control Work

During the experimental control work in New England and New York, from 1918 to 1921 inclusive, 1,036,903 acres were cleared of 14,399,785 wild Ribes and 91,718 cultivated bushes at an average cost of 37.6 cents per acre. The cost per acre was reduced from 72 cents in 1918 to 18 cents during 1921. In the application of control measures during the present program, from 1922 to 1930 inclusive, an additional area of 7,442,798 acres (including nursery sanitation project) was eradicated of 67,845,726 wild Ribes and 468,461 cultivated bushes at a per acre cost of 18.1 cents. This acreage, however, includes 554,798 acres reworked since 1923. Therefore, up to 1930 inclusive, cooperative control work had actually been conducted on a total of 7,924,903 acres (pine areas and protection zones) on which 82,245,511 wild Ribes had been destroyed. This does not include a few thousand acres worked in connection with strictly federal projects. In conjunction with the regular control work, measures are also being taken to protect white pine nursery stock and plantings and to eliminate Ribes nigrum from the white pine region.

Cooperation

The public participation in control work during 1918 to 1930 is indicated by 33,429 individual cooperators expending \$430,166.34, and by 1361 town appropriations totalling \$380,572.30. These individuals actually furnished labor or money to eradicate the Ribes on their properties. Also, thousands of additional owners permitted the destruction of their cultivated bushes without compensation. The excellent public support in this respect is evidenced by the fact that although 468,461 cultivated Ribes were destroyed in the regular control work and 54,037 in connection with special black currant and nursery sanitation projects, during the period 1922 to 1930 inclusive, yet it was only necessary to compensate 1139 owners \$10,433.69 for 28,335 bushes. In other words, based on the total number of cultivated Ribes eradicated, compensation was paid for only 5.5 percent of the total bushes and averaged 2.0 cents per bush. In addition to the above direct cooperation, thousands of individuals gave their general support and personal aid to the control program.

These splendid accomplishments in individual and town cooperation are the result of successful educational and service activities. The former are necessary to create general and favorable attention, interest and desire; the latter are essential to secure general, prompt, and effective cooperation in applying control measures by individuals and towns. The amount of this work conducted by the blister rust agents in New England and New York during 1922 to 1930 inclusive is as follows:

Education

Exhibits Placed.....	4,619	Publications distributed.....	539,590
Items published.....	8,896	Posters and signs placed.....	61,959
Meetings addressed.....	3,975	Field demonstration meetings.	3,010
Attendance.....	282,359	Attendance.....	28,529

In addition, thousands of mimeographed articles have been distributed, many roadside demonstrations placed, infected trees tagged, radio talks given, etc.

Service

Initial interviews...	108,589	Individuals personally in-	
Follow-up calls.....	57,896	structed in field.....	66,701

Control Work by Individuals and Towns

Individual cooperation in wild Ribes eradication has been solicited in all the Northeastern States. However, such efforts have been restricted in New Hampshire where the work is done chiefly in cooperation with towns, and in Rhode Island where, except during 1920, state funds have been used to pay the entire cost of the limited amount of necessary control work. In New England and New York during the period 1922 to 1930 inclusive, the cooperative Ribes eradication work with 33,048 individuals resulted in 1,975,673 acres being cleared of 36,489,111 wild Ribes and 287,895 cultivated bushes at a total cost of \$653,583.86, or a per acre cost of .331 cents. This cooperative work represents 26.5 percent of the total area eradicated of Ribes in New England and New York during this period. For detailed information by years and states see tables on pages 117 and 118.

Town cooperation has been obtained chiefly in New Hampshire, Connecticut, and Maine. However, some town funds have also been secured in Vermont and Massachusetts. In New Hampshire, 927 town appropriations have made available \$301,250.00 for control work. This amount represents 79 percent of the total town money secured in New England since 1918. Many of the New Hampshire towns have consistently made yearly appropriations until their entire pine areas were cleared of Ribes. In fact, initial control work has been completed in 90 New Hampshire towns. The town money in New Hampshire is turned over to the state and expended with an additional 20 percent state funds to clear definite town blocks of Ribes, irrespective of property lines. A few towns in Maine and Connecticut have also been worked on the basis of town blocks. The total work on this basis since 1922 resulted in 2,135,177 acres being cleared of 23,832,722 wild Ribes and 80,915 cultivated bushes at a total cost of \$387,982.04, or 18.2 cents per acre;

95.5 percent of this acreage was in New Hampshire and 3.8 percent in Connecticut. During 1926 to 1930 inclusive, \$22,583.52 was expended on re-eradication work from 97 town appropriations made in New Hampshire, Maine, Vermont and Connecticut.

In Maine, town cooperation has been obtained since 1922; 402 town appropriations making available \$68,873.52 for control work. This town money, except for a few thousand dollars, has been used to employ town foremen who aid the individual owners in eradicating Ribes concentrations on their properties. The eleven town appropriations, totaling \$805.90, in Vermont have been used to pay the excess labor cost of foremen working with individual owners. Town money was secured in Massachusetts only during 1920 and 1921, when four appropriations, totaling \$1700, were made for control work in Berkshire County.

State Work in Eradicating Ribes

Ribes eradication work performed by the states and paid for entirely from public funds may be divided into two classes according to land ownership; namely, public lands and individuals' lands. Control work on state forests has been conducted in all states except Maine, which up until 1931 did not own such land. Since 1922, a total of 153,865 acres of state forests (or 2.1 percent of the entire acreage cleared of Ribes in New England and New York) have been eradicated of 5,657,791 wild Ribes and 14,993 cultivated bushes at a total cost of \$172,509.28, or \$1.12 per acre. Of this total amount, New York has expended \$142,039.54 on 73,430 acres at a per acre cost of \$1.93 for eradicating 45.0 Ribes per acre. Also, most of the control work performed in New York prior to 1922 was on state lands. In the other states, very little state land work was done before 1922. Massachusetts ranks second in amount of control work on state forests, since 1921 having eradicated 2,062,813 wild Ribes and 8,560 cultivated bushes from 65,189 acres at a cost of \$25,508.22. Detailed summaries of state land projects are given on page 120 of this report. Initial control work has been completed on all pine lands in the state forests of New England, except a few small units in Massachusetts. New York has also completed about 50 percent of the initial Ribes eradication work needed in its state forests.

State control work on individually owned lands has been restricted to five states; Maine, Massachusetts, Rhode Island, Connecticut, and New York. Since 1921, these states have cleared 3,153,437 acres of 1,692,257 wild Ribes and 83,689 cultivated bushes, at a total cost of \$128,291.85. This acreage represents 42.4 percent of the total area worked in New England and New York since that time. This work also represents an expenditure of four cents per acre for eradicating an average of half a bush per acre. In other words, such control work

has been conducted on lands where the Ribes were so few and localized it was more efficient to do the control work by state scouts than to attempt to secure the cooperation of the individual owners. Most of this kind of work has been performed in Maine and Massachusetts. The percentage of the total acreage cleared of Ribes since 1921 in each state, that was worked on this basis is as follows: Maine - 87.2%; Massachusetts - 43.6%; Rhode Island - 99.3%; Connecticut - 37.1%; and New York 5.4%. . In addition to the above, the state of Maine was compelled to enforce its state law in applying control measures during 1927 to 1929 on 140 acres of individually owned lands when the owners refused to cooperate. Detailed summaries of all state control work on individually owned lands are given on page 119.

Protection of White Pine Plantations

Adequate measures are being taken to protect the white pine plantings, in conjunction with the protection of natural pine, in all the agent districts of New England and New York. In three states, (New York, Vermont and New Hampshire) the agents are supplied with lists showing the annual distribution of white pine stock from state nurseries. This procedure should be followed in Maine and Massachusetts, as such lists are useful in securing cooperation. As all permits for pine planting stock in Rhode Island are reviewed by the state leader, he has a complete record of plantings. In Connecticut and New York, there is an abundance of planted pine outside the agents' districts. Some white pines have also been planted outside the agent districts in Vermont, but few of these plantations have been inspected. In Connecticut, where over 10,000 acres have been set out to white pine, these outside plantings are more or less naturally protected, due to the scarcity of wild Ribes. However, no systematic inspection of these plantations has been made. Such work is needed, especially to eliminate Ribes nigrum. In New York, where 62,049,678 white pines have been distributed from the state nurseries up to 1930 inclusive, systematic inspection of plantations, outside the agents' districts, was begun during 1928 in five counties and such work continued during 1929 and 1930.

New York requires all prospective planters to sign an agreement, guaranteeing to eradicate all Ribes from the pine planting sites. Maine sends the planters special cards emphasizing the need for control, and attaches warning cards to each pine shipment sent from the state nursery. Also, in New Hampshire, Rhode Island, and Vermont, a special letter, regarding the importance of control, is sent to each planter. It is essential that each state take definite action to make sure white pines are planted only on protected sites.

Status Of Blister Rust Control In New England And New York - December 31, 1930.

<u>State</u>	<u>Total Acreage Cleared Of Ribes 1918 to 1930 Inclusive, (Excluding re-eradication)</u>	<u>Total Acreage Still Needing Initial Control Work (a)</u>	<u>% Total Control Area Cleared of Ribes</u>
Maine	2,575,581	399,013	86.6
N.H.	2,406,908	380,531	86.1
Vt.	171,335	128,192	57.2
Mass.	1,716,915	40,000	97.7
R.I.	272,682	250	99.9
Conn.	231,955	1,000	99.6
N.Y.	549,527	378,922	59.2
Totals	7,924,903	1,327,913	85.6

(a) This area is based on estimates, made by the blister rust control agents, of the remaining acreage still in need of initial Ribes eradication in the various towns of their districts. It includes both pine areas and protection zones.

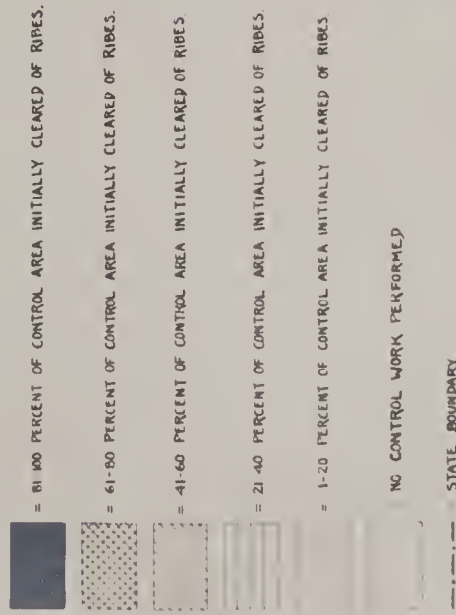
(b) Outside the agents' districts in Maine and east of the Penobscot River, there are an additional 411,871 acres of mixed growth with a stocking of 20 percent or more white pine. Some of this pine may require protection.

(c) Outside the agents' districts in New York, there are an additional 132,301 acres containing principally white pine plantations and mixed natural growth with a stocking of 20 percent or more white pine. No information is available as to how much of this acreage will need eradication of Ribes.

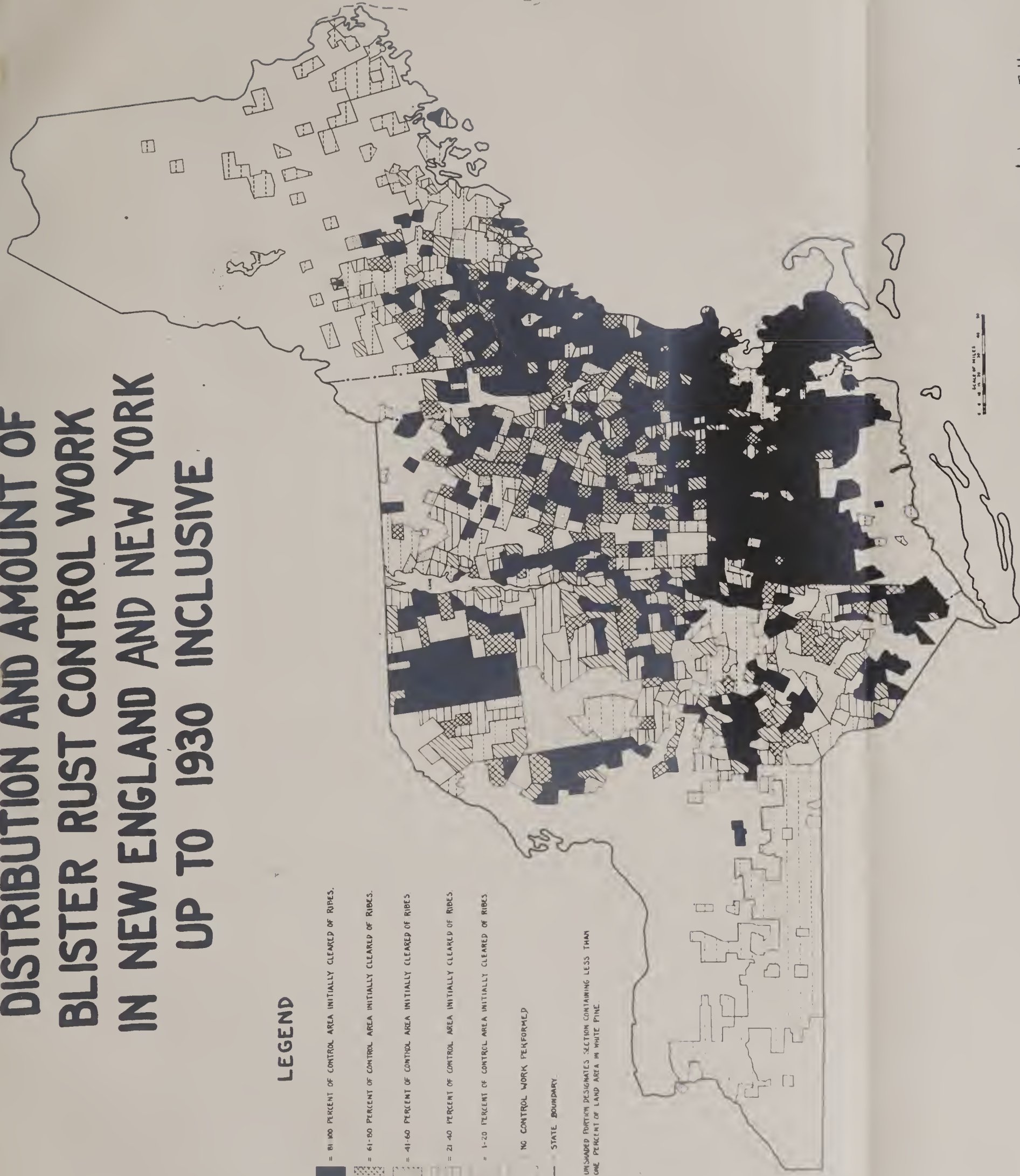
The status of control work in New England and New York is also depicted on the following map. It is based on the actual acreage initially cleared of Ribes in each town and estimates made, by the blister rust control agents, of the remaining acreage still in need of initial Ribes eradication in each town of their districts.

DISTRIBUTION AND AMOUNT OF BLISTER RUST CONTROL WORK IN NEW ENGLAND AND NEW YORK UP TO 1930 INCLUSIVE

LEGEND



NOTE: UNSHADED PORTION DESIGNATES SECTION CONTAINING LESS THAN ONE PERCENT OF LAND AREA IN WHITE PINE.



SCALE OF MILES
0 10 20 30 40 50

Designed by E.C.Filler
Drawn by William Clave - 1930.

Special Control Work (New England and New York)

Nursery Sanitation

White pines must be grown under absolutely sanitary conditions, as regards Ribes, in order to prevent infection from blister rust. Therefore, it is essential that the white pine stock in each nursery be protected by eradicating all species of Ribes within 1500 feet and all European black currants within one mile. New York and all the New England States have state nurseries, except Rhode Island, and all produce white pine. Control of the disease has been established and is being maintained in these nurseries with the exception of the state nursery at Orono, Maine. Adequate protective measures will be applied around this latter nursery in 1931. In Maine, New Hampshire, Vermont and Rhode Island there are only a few commercial nurseries growing white pine. All of these nurseries which ship pine interstate have applied protective measures. However, in the case of two of them, the Brown Nursery at Oquossoc, Maine, and the Keene Nursery at Keene, New Hampshire, control has not been established due to the abundance of Ribes and to the difficulty of completely eradicating such bushes in slash and swamp areas.

Most of the commercial pine growing nurseries are located in Connecticut, Massachusetts and New York. In 1928, control areas were established around eleven Connecticut nurseries, 3,962 acres being cleared of 60 wild Ribes, 93 Ribes nigrum and 333 other cultivated bushes. This sanitation work in Connecticut was continued during 1929, in the environs of eleven nurseries, 5,960 acres being eradicated of 1,182 wild Ribes and 1,814 cultivated bushes. All except 380 acres was re-eradication work. In 1930, the state assumed the responsibility for the maintenance of protection around these nurseries, the owners sharing a part of the sanitation costs. This work around thirteen nurseries resulted in 14,991 acres being cleared of 3,544 wild Ribes and 643 cultivated bushes; 11,077 acres of this was re-eradication work. Cooperating nurserymen in this state also reimbursed twelve Ribes owners \$76.25 for the loss of 114 cultivated bushes destroyed in connection with sanitation projects.

In Massachusetts, all nurseries growing white pine for public sale were cleared of Ribes prior to 1925, and in each case a protection zone of 900 feet was also eradicated of such bushes. Infected pines had been found in three nurseries and the diseased trees destroyed. During 1925 and 1926, a special survey was conducted to eradicate all Ribes nigrum from within one mile of each state nursery and the more important commercial pine growing nurseries. In this work, a total of 217 Ribes nigrum, 319 flowering currants and 20 other cultivated Ribes were destroyed. These bushes were owned by 155 persons, but claims were made by only ten persons for loss of 106 bushes. In 1927, the nursery sanitation work was placed on a definite basis (of 1500 foot zones for wild Ribes and cultivated bushes

other than nigrum) to agree with the federal requirements for shipment of pines outside of New England. During 1927 and 1928, control work was conducted around nine of the main commercial nurseries, and 4,942 wild Ribes and 3,345 cultivated bushes were destroyed. Fifty persons claimed \$647.15 for loss of 1,400 cultivated Ribes. Spot pine infections were found in six Massachusetts nurseries during 1928, but no new outbreaks were located. The state policy of establishing Ribes-free conditions around only the more important white pine producing nurseries was continued during 1929. It is believed that expenditures for such work around any additional nurseries would not be justified due to the relatively limited number of white pines grown. Sanitation work was carried on during 1929 around four commercial nurseries owning areas in eight towns. A total of 720 wild Ribes, 104 black currants, and 1,131 other cultivated Ribes were destroyed. Only eleven claims for reimbursement were received for the loss of 106 cultivated bushes. Three of the Department of Conservation nurseries were also examined, but no Ribes were located. The annual inspection of the Massachusetts nurseries in 1929 by state inspectors resulted in six infected trees being found in three nurseries. During 1930, initial control work was performed in the environs of one commercial nursery and the protection zones around two other nurseries were re-examined for Ribes. Only 270 wild Ribes and 129 cultivated bushes were found on the 197 acres examined in connection with this work. In the regular spring inspection of white pines in the larger nurseries in the state infected pines were found in three nurseries, involving in all only nine specimens. Future sanitation work will be limited to re-inspections of the environs of those nurseries which have been initially protected.

During the past several years, sanitation measures have been applied to protect the pine areas in the New York State nurseries. The protection zones were for some time maintained at 900 feet. During 1928, this distance was increased to 1500 feet for all Ribes except nigrum which were eradicated within one mile of the pine areas. To date, this latter species has been eliminated within a mile of each of the five state nurseries and the 900 foot Ribes free zones have also been completely extended to 1500 feet. All the sanitation work in 1929 and 1930 was confined to state nurseries. During 1930, the re-eradication work around these five nurseries resulted in 9,042 acres being cleared of 53,314 wild Ribes and 53 cultivated bushes at a cost of \$3,101.82. In addition to the state nurseries, there are about 300 commercial nurseries in New York, but only a few of these grow any appreciable amount of white pine. During 1928, the first attempt was made to establish protection zones around some of these nurseries, especially in Wayne and Westchester Counties. Due to the abundance of cultivated Ribes and the fact that compensation had to be paid for such bushes destroyed, it was apparent that the sanitation work would have to be limited. Therefore, it was restricted to a general survey to determine and record Ribes conditions in the environs of the nurseries and to the eradication of Ribes nigrum in such situations. According to the revised state blister rust law, effective February 17,

1930, no compensation shall be paid by the State for any species of Ribes destroyed in connection with the establishment of Ribes-free zones around commercial nurseries, but fair compensation must be paid for such bushes by the person owning or operating the protected nursery.

Three nurseries (Vermont Forest Nursery, Essex Junction, Vermont, Western Maine Forestry Company, Fryeburg, Maine, and the Jackson and Perkins Company, Newark, New York) have been issued pine shipping permits for the fiscal year 1930 and may ship five-leaved pines interstate in compliance with the requirements of Section (d) Regulation 2 of the federal white pine blister rust quarantine No. 63. In addition, the applications of A. N. Pierson, Cromwell, Connecticut, and H. J. Zach, Deep River, Connecticut, have been tentatively approved and permission granted to plant white pine seed.

Black Currant Eradication (New England and New York)

All these cooperating states are taking action to eliminate the European black currants. Three states, New York, Rhode Island and Connecticut, have definite state laws which prohibit the possession of Ribes nigrum. In the other states, such bushes may be eradicated under authority given by the respective general blister rust control laws. Four of the Northeastern States (Massachusetts, Vermont, Rhode Island and New York) started systematic surveys in 1928 to locate and eradicate these bushes. Connecticut began such work in 1930. In Maine and New Hampshire, Ribes nigrum are eradicated in conjunction with the town control projects. In New York and Rhode Island, where special systematic black currant work was performed each year since 1928, a total of 24,961 such bushes were destroyed in 167 towns. In Vermont, such work, in 1928 and 1929, resulted in 183 Ribes nigrum being pulled in 23 towns. The Connecticut project in 1930 was completed in 5 towns where 37 black currants were eradicated. During 1930, special black currant work was carried on in 65 Massachusetts towns, 12,190 such bushes being destroyed. All previous black currant work in Massachusetts was conducted in conjunction with regular control projects. Up to 1931, black currant eradication work had been completed in 150 Massachusetts towns and partially finished in 46 additional ones. A total of 26,599 Ribes nigrum were destroyed in these towns since 1927. No figures are available for the other states as regards the number of European black currants eradicated in connection with the regular control work.

Special Blister Rust Studies And Investigations (New England and New York)

Although there has been no special funds or personnel available to conduct surveys and field investigations in blister rust control, considerable work of this type has been performed at odd times by members of the organization. A brief summary of this work follows:

Surveys

A cultivated Ribes census was made in Massachusetts during 1917 - data compiled and a summary report prepared - used as a basis for later inspections and in eradication of Ribes nigrum. Detailed white pine surveys made in Vermont, Rhode Island, Connecticut, and parts of Maine and New York - field data summarized and pine areas plotted on maps - information used by agents in planning their work - detailed reports have been submitted on the completed surveys, and the information used for educational and supervisory purposes. Surveys on production, value and use of white pine and other woods completed in Vermont - production survey finished in Rhode Island - these data have been summarized and reports published - information used for educational purposes. A survey of forest resources in New Hampshire was completed by the State Forestry Department in 1924, and the data published in bulletin form. Strip line infection surveys were made during 1920 in New Hampshire, Maine, Vermont, New York and Massachusetts - the pines on rod wide strips, totaling 165.9 miles in length, were examined - a total of 42,274 pines were inspected and 10.2 percent were found infected - 256 plots, totaling 71.8 acres, were laid out adjacent to the strips; 27.7% of the 23,461 pines on these plots were diseased - the information has been used for educational purposes in various published statements. Cartographical survey made in all states during 1926 and 1927 to determine, by towns, forest conditions, especially white pine, Ribes, and infection - data summarized and maps prepared at the Boston Office, as a basis for the epidemiology study. During 1928, the New Hampshire agents conducted a survey in 69 backward towns to locate and map the minimum control area, which should be cleared of Ribes to protect the pine crop. Partly as a result of this survey, over 30 percent of these towns appropriated for control work in 1929.

Investigations

Demonstration areas of blister rust control established in all states - reports submitted on various studies - data used as a basis for determining costs of Ribes eradication, and for obtaining comparative figures. Effectiveness of control studies were made in all states prior to 1927, except Vermont - reports submitted on these studies, but only Kittery Point study has been published. Blister rust damage plots laid out in all states, except Rhode Island - plots used for demonstration purposes and data summarized for educational use of agents. Detailed studies made in all states of spread and development of infection from definite sources, except in Rhode Island and Connecticut - reports submitted on each study, only Kittery Point study has been published. Cutting out of cankers experiment made in Massachusetts - part of the results published in bulletin form by Martin, Posey and Gravatt. Sample forest type maps made during 1919 of two towns, (Dover and Kensington) in New Hampshire and one in Massachusetts, (Duxbury) - detailed maps and estimates prepared - established effective method of mapping and estimating; town data used by agents for educational purposes and as a basis for control work. Selective

eradication and Ribes ecology studies made by Fivaz in New York - report submitted for publication. Skunk currant study by Clave and Perry in Massachusetts - preliminary report given at 1927 annual conference showed only restricted spread of disease from such bushes. Crew method study by Riley in Connecticut - preliminary report presents no definite conclusions. Study begun by Clave to determine effectiveness of sodium chlorate in killing skunk currants - preliminary report given at 1928 annual conference. Special study conducted by New York agents in 1928 to ascertain effectiveness of control - preliminary summary prepared by Boston Office shows pines examined for infection in 30 acre plots, 15 of the plots being in areas cleared of Ribes and 15 in comparable unworked tracts - since the time of Ribes eradication, 15 times as much pine infection has originated in the unprotected tracts as in the protected areas. Similar studies on the effectiveness of control were made, during 1928 and 1929, in Maine, New Hampshire, Vermont and Massachusetts. The New York agents also laid out additional plots in 1929. These data have been summarized at the Boston Office and copies of the summaries sent to Washington and the respective state leaders.

Pennsylvania, New Jersey and the Lake States

Regular Control Work

During the period of experimental control from 1918-1921, inclusive, Ribes eradication work was performed only in Minnesota and Wisconsin, where a total of 25,083 acres were cleared of 1,668,868 wild Ribes and 137 cultivated bushes at a cost of \$22,486.37, or 89.6 cents per acre. Since the beginning of the present program in 1922, an additional 39,411 acres in Pennsylvania and the Lake States have been eradicated of 2,770,423 wild Ribes and 2,528 cultivated bushes at a total cost of \$33,366.76. This acreage includes 1,216 acres which were re-examined in Michigan, Wisconsin and Pennsylvania.

The application of control measures in Michigan and Pennsylvania was not begun until 1928 and 1929 respectively. In 1929, the Michigan legislature passed a blister rust control law and made available \$20,000 for control work during each of the next two fiscal years. No control work was performed in Minnesota during the period 1923 to 1929 inclusive; but in 1930, a small amount of such work was conducted. In Wisconsin, a limited amount of protection work has been carried on, under the direction of a permanent state leader, each year since 1922, except during 1924 and 1925. A permanent state leader was appointed in Michigan during 1928; and in 1929, similar appointments were made in Michigan, Pennsylvania and New Jersey. In the latter state, the activities of the part-time leader have been limited chiefly to general scouting and inspection of nurseries and plantations. There has been no occasion to apply general control measures in New Jersey.

Cooperation

Due to the small amount of control work performed, cooperation has been correspondingly restricted. Town funds have been solicited and obtained only in Michigan, where a total of four town projects involved town expenditures of \$722.70 during 1928 to 1930. Individual cooperation has been requested and obtained in the three Lake States and Pennsylvania; 174 individuals expending \$3,726.70 on control projects since 1922. This includes \$957.25 worth of labor supplied by 64 individuals in Wisconsin in conjunction with state work on individually owned lands. It also includes \$106.99 expended by two nurserymen on sanitation work in Minnesota during 1930.

Control Work by Towns and Individuals

A total of four town projects in Michigan resulted in 3,300 acres being cleared of 141,895 wild Ribes and 341 cultivated bushes at a cost of \$722.70 to the towns and \$737.58 to the state. The cooperative work with individuals in Michigan, Wisconsin, Minnesota and Pennsylvania since 1922 made it possible to eradicate 6,457 acres of 407,986 wild Ribes and 869 cultivated bushes at a cost of \$2,769.45 to the owners, \$296.96 to the Government and \$2,146.07 to the states.

State Work in Eradicating Ribes

State control work on public forests has been conducted in Pennsylvania, Michigan, Wisconsin and Minnesota. Since 1922, a total of 20,760 acres have been eradicated of 1,344,715 wild Ribes and 1,313 cultivated bushes at a cost of \$16,203.02 to the states and \$1,881.92 to the Government. This acreage includes control work on the Menomonee Indian Reservation near Keshina, Wisconsin, and in the environs of public nurseries in Pennsylvania, Michigan and Minnesota. State control work on individually owned lands has been restricted to Wisconsin, where a total of 8,894 acres have been worked on this basis; 875,827 wild Ribes and 5 cultivated bushes being eradicated at a cost of \$7,368.74 to the state, and \$283.07 to the Government. In addition 64 owners cooperated in this work by furnishing labor worth \$957.25.

Status Of Blister Rust Control In Pennsylvania And Lake States
December 31, 1930

State	Year Control Work Performed	Total acreage Cleared Of Ribes 1918 to 1930, incl. (Excluding re-eradication)	Acreage of White Pine Growth*			
			Pure Pine (80% or more pine)	Mixed Pine (20-79% pine)	Pine re-stocking in types other than pine	Total
Penn.	1929 and 1930	16,743	91,897	126,101	157,630	375,628
Mich.	1928 to 1930	10,588	28,321	685,789	122,769	836,879
Wis.	1918 to 1930	29,500	11,127	109,756	negligible	120,883
Minn.	1918 to 1922 and 1930	6,447	173,092	266,812	170,524	610,428
Totals	-	63,278	304,437	1,188,458	450,923	1,943,818

*The acreage of white pine growth is based on a rough preliminary survey made in these states by the Office of Blister Rust Control during 1927 and 1928. In addition to the acreage listed, there is a vast area of mixed growth with pine stocking of less than 20 percent.

Special Control Work (Pennsylvania, New Jersey and Lake States)

Nursery Sanitation

Nursery sanitation in Pennsylvania has been restricted to three state nurseries located at Clearfield, Greenwood and Mont Alto. Ribes eradication work was first conducted around the Clearfield nursery in 1924. During 1926, a re-examination was made within a 900 foot protection zone. The area was again reworked in 1928, including all white pine plantations in the vicinity of the nursery and for a distance of 900 feet beyond the plantings. In 1927, initial control work was performed at the Greenwood and Mont Alto nurseries. During 1930, all three state nurseries were re-eradicated of Ribes and protected by 1500 foot sanitation zones. This 1930 work resulted in 886 acres being cleared of 7,248 wild Ribes at a cost of \$507.63.

The amount of white pine grown in the commercial nurseries of Pennsylvania is very limited and used entirely for ornamental purposes. Practically all of these commercial nurseries are located in open situations, where wild Ribes are absent or very scarce.

In New Jersey, there were 112 commercial nurseries which contained host plants of blister rust February 1, 1931. Some ornamental white pines were being grown in 97 of these nurseries and 22 were raising both host plants. At the time of the survey, there existed in these commercial nurseries 120,577 ornamental white pines and 13,769 cultivated Ribes. In addition, the state nursery contained 423,000 white pines. No protective measures have been applied around this state nursery.

During the past few years, the officials of the Michigan Department of Agriculture have made annual inspections of pine and Ribes in many of the local nurseries. This work resulted in the destruction of a large number of Ribes nigrum by the nurserymen. No detailed records of this work are available. The blister rust law, passed in 1929, provided for the establishment of control areas. Before the passage of this law, the Commissioner of Agriculture had set aside by special promulgation, the three principal public nurseries as blister rust control areas. Due to lack of funds, no sanitation work was conducted until 1929, when these three nurseries and environs were eradicated of Ribes. Cultivated black currants were also destroyed within a mile radius of each of these nurseries. In 1930, the protection zone around one of these nurseries (Dunbar Experiment Station) was extended and 100 acres cleared of Ribes. In addition, 60 acres were reworked. This initial and re-eradication work during 1930 resulted in the destruction of 45,236 wild Ribes and 4 cultivated bushes at a cost of \$779.58.

In 1925, the State of Wisconsin maintained one small nursery. However, since that time, the facilities for raising planting stock have been greatly increased. The pine and Ribes on the commercial nurseries have been inspected annually, but no infection has been found. No information is available as to protection measures.

The planting stock in the state and commercial nurseries of Minnesota is yearly inspected by state officials. No information is available regarding these inspections or sanitation measures prior to 1930. An examination of the environs of two commercial nurseries in 1930 resulted in 120 acres being cleared of 31,861 Ribes at a cost of \$170.14.

Black Currant Eradication (Pennsylvania, New Jersey and Lake States)

Michigan is the only state in the above region that has conducted a special black currant eradication project. The state blister rust law passed in 1929 prohibits the possession of the European black currant in the state. The systematic eradication of these bushes was begun in 1929 on a county basis. During 1929 and 1930, a total of 22,972 black currants were eradicated in 280 towns at a cost of \$17,929.61. These total figures do not include the Ribes nigrum destroyed in connection with the regular control work. To date, the project has been completed in seven counties of the lower peninsula and in four of the upper peninsula. The greater portion of two other counties, one in the upper and one in the lower peninsula, have also been eradicated of black currants.

Field Studies and Investigations
(Pennsylvania, New Jersey and Lake States)

During 1927, a cooperative school survey was conducted in 57 counties of Pennsylvania to determine the extent of the rust on Ribes. Returns from 1716 schools in 53 counties showed the disease distributed over 37 counties, extending west nearly to the Ohio border and south to the Maryland line - detailed report submitted by McCubbin. Forest type survey made in Pennsylvania by Hirt during 1927 - pine data summarized and made available for state and federal use. A similar survey was made in Michigan during 1928 and 1929 - these data summarized and copies furnished the state and federal offices. During 1922 to 1930, experiments on Ribes eradication and Ribes ecology were conducted at Eau Galle, Wisconsin - preliminary report of this study prepared by Ninman. Pine infection and Ribes regrowth plots were established in Minnesota during 1927 - plots rechecked in 1928 and 1929 - summary of conditions given in the Minnesota annual report for 1929. Forest type surveys have also been made in Wisconsin and Minnesota - data summarized and made available for state and federal use.

COOPERATIVE BLISTER RUST CONTROL WORK IN NEW ENGLAND
AND NEW YORK DURING 1930.

Summary of Results Accomplished in Blister Rust Control
In New England and New York During 1930.

<u>Education</u>		% Increase or Decrease 1930 Over 1929.
	1930	
Meetings addressed.....	144	-29.4
Attendance.....	8,275	-60.9
Field demonstration meetings.....	44	-37.1
Attendance.....	1,022	-46.1
Displays placed.....	215	-39.9
Mimeographed articles distributed.....	20,715	-10.5
Publications distributed.....	48,128	- 8.0
News items published.....	518	-32.6
Posters and signs placed.....	3,445	-21.5
Roadside demonstrations placed.....	127	No record in 1929

<u>Service</u>		
Initial interviews.....	7,905	-12.3
Follow-up calls.....	5,568	-14.4
Personal instruction in field.....	3,166	-53.0

<u>Individual Cooperation</u>		
Number individuals (Wild & cult. Ribes eradication.....	2,435	-27.4
cooperating in (Cult. Ribes eradication only.....	971	- 4.4
(General support only.....	5,179	+ 3.7
Amount expended by individuals on control work....	\$36,101.47	-28.4
Number of states in which individuals cooperated.....	6	Same

<u>Town Cooperation</u>		
Number cooperating towns.....	186	+19.2
Number states in which towns cooperated.....	4	Same
Amount of town money appropriated.....	\$47,391.50	+14.5
Amount of town money used.....	\$46,128.12	+11.6

<u>State Cooperation</u>		
Number states cooperating	7	Same
Amount state (appropriation) funds used (all projects).....	\$119,138.75	-11.3

Ribes Eradication

	1930	% Increase or Decrease 1930 Over 1929.
Acreage cleared of Ribes.....	722,561	-21.4
Acreage of re-eradication work.....	72,899	-38.7
(Included in above total figure on area cleared of Ribes)		
(Wild.....)	7,452,394	+2.6
Ribes eradicated (Cultivated.....)	30,924*	-58.6
(Total.....)	7,483,318	+2.0
Total Cost (Ribes eradication).....	\$152,060.60	-11.2
Cost per acre.....	.210	+12.9
Ribes per acre.....	10.3	+30.3

Ribes Compensation

Number persons compensated.....	88	-80.6
Total bushes paid for.....	2,630	-35.3
Total cost of compensation.....	\$1,149.70	-35.8

Personnel

(Cooperative Control Work)

State leaders.....	5	} we pay salary	Same
Blister rust control agents (permanent).....	33		+3.1
Blister rust control agents (temporary).....	21		-4.5
State eradication assistants.....	3		-33.3
State checkers.....	2		-50.0
Foremen.....	193		-1.5
Scouts.....	45		+55.2
State laborers.....	346		-35.3
Owners' laborers.....	3,694		-47.9
Total number men employed in field work.....	4,342		-45.2
(Regardless of length of time each worked)			

Classification of Funds Used

State Appropriations.....	\$119,138.75	-11.3
Nursery funds.....	1,365.26	-58.1
Town appropriations.....	46,128.12	+11.6
Individual funds.....	36,101.47	-28.4
All other state funds.....	2,146.15	-2.5
Federal \$ for \$ money ,.....	125,265.99	+4.3
Total expenditures.....	330,145.74	-6.1

*An additional 21,616 cultivated Ribes were destroyed in connection with special black currant eradication projects.

DETAILED SUMMARY AND ANALYSIS, BY STATES, OF
COOPERATIVE CONTROL ACTIVITIES IN NEW ENGLAND AND
NEW YORK DURING 1930.

EDUCATIONAL ACTIVITIES OF PERMANENT AGENTS IN NEW ENGLAND AND NEW YORK DURING 1930 -
 BASED ON TOTALS AND AVERAGES FOR EACH STATE.

State	Meetings Addressed		Field Dem. Meetings		Displays Placed		Mimeographed Articles Dist.		Publications Distributed		Items Published		Posters and Signs Placed		Roadside Dem. Placed	
	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.	Total	Ave. Per Agt.
Maine	21	5.2	5	1.2	8	2.0	645	161.2	3,344	836.0	7	1.7	476	119.0	29	7.2
N. H.	64	9.6	10	1.5	97	14.5	19,178	2862.4	8,616	1286.0	277	41.3	724	108.1	8	1.2
Vt.	14	10.0	1	0.7	37	26.4	4	2.8	3,175	2267.8	39	27.8	385	275.0	3	2.1
Mass.	7	1.5	16	3.5	22	4.8	100	21.7	14,534	3159.6	77	16.7	69	15.0	36	7.8
R. I.	13	13.0	1	1.0	2	2.0	655	655.0	6,875	6875.0	22	22.0	433	433.0	-	-
Conn.	1	1.7	2	3.3	7	11.7	-	-	90	150.0	25	41.7	19	31.7	-	-
N. Y.	23	2.5	4	0.4	28	3.0	87	9.5	8,946	972.0	70	7.6	473	51.4	5	0.5
Totals	143	5.2	39	1.4	201	7.3	20,669	751.6	45,580	1657.4	517	18.8	2,579	93.8	81	2.9

In addition to the educational accomplishments listed in the preceding table, the 15 temporary agents employed in Maine reported the following activities: One indoor meeting attended by six individuals, 5 field demonstration meetings with an attendance of 32 persons, 43 roadside demonstrations, 2006 publications distributed, 1 news item published, 10 window or fair exhibits, 46 mimeographed articles distributed, and 832 posters and signs placed. The temporary agents in Vermont distributed 115 publications, placed 3 roadside demonstrations and 29 posters and signs. Also, the temporary agents in Connecticut distributed 423 publications, placed 4 window or fair demonstrations and 5 posters and signs.

Although the educational work of these temporary agents comprised only a small proportion of the total amount of such work in New England and New York; yet in Maine, these men held 4.5% of the indoor meetings and 50.0% of the field demonstration meetings, set 55.6% of the displays, distributed 37.5% of the publications and 6.7% of the mimeographed articles, published 12.5% of the news items, placed 63.6% of the posters and signs and 59.7% of the roadside demonstrations.

SERVICE ACTIVITIES OF PERMANENT AGENTS IN NEW ENGLAND AND NEW YORK
DURING 1930 - BASED ON TOTALS AND AVERAGES FOR EACH STATE.

State	No. Initial Interviews		No. Follow-up Calls		Personal Instruction in Field	
	Total	Weighted Ave. Per Agent	Total	Weighted Ave. Per Agent	Total No. Individuals	Weighted Ave. Per Agent
Maine	723	180.7	336	84.0	291	72.7
N. H.	1231	183.7	1757	262.2	755	112.7
Vt.	926	661.4	528	377.1	352	251.4
Mass.	1505	327.2	469	102.0	388	84.3
R. I.	128	128.0	220	220.0	70	70.0
Conn.	356	593.3	148	246.7	119	198.3
N. Y.	1294	140.7	1407	152.9	461	50.1
Totals	6163	224.1	4865	176.9	2436	88.6

In addition to the above service items, the 15 temporary agents in Maine made 1268 initial interviews and 572 follow-up calls, and gave personal field instruction to 594 individuals. The temporary men in Vermont made 149 initial interviews, 98 follow-up calls and instructed 50 individuals in the disease and damage or control methods. Also, the Connecticut temporary agents reported 325 initial interviews, 33 follow-up calls, and personal field instruction to 86 individuals.

The service work of the temporary men in Maine represents 63.7% of the initial interviews in that state, 63.0% of the follow-up calls, and 67.1% of the persons given personal instruction in the field.

COOPERATIVE RIBES ERADICATION IN NEW ENGLAND AND NEW YORK DURING 1930.

(Based on totals and per acre values for each state,
including both initial and re-eradication work)

State	No Acres Examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
Maine	195,249	1,984,950	10,573	\$19,845.49	\$.102	10.2
N. H.	225,303	2,844,896	3,197	48,746.11	.216	12.6
Vt.	13,172	94,701	108	5,996.22	.455	7.2
Mass.	136,988	1,024,641	8,284	18,457.15	.135	7.5
R. I.	No wild Ribes eradication work performed during 1930.					
Conn.	44,586	47,703	4,238	5,783.51	.130	1.1
N. Y.	107,263	1,455,503	4,524	53,232.12	.496	13.6
Totals	722,561	7,452,394	30,924	152,060.60	.210	10.3

Comparison, By States, Of Acreage Eradicated of Ribes and Per Acre Costs In
New England and New York During 1929 and 1930. (Initial and Re-eradication Work)

	Acreage Eradicated		Percent + or - in Acreages Eradicated Over 1929	Cost per Acre		Increase or Decrease in Per Acre Cost 1930 Over 1929	Increase or Decrease in Ribes Per Acre 1930 Over 1929
	1930	1929		1930	1929		
Maine	195,249	233,543	-16.4	.102	.090	+.012	+1.2
N. H.	225,303	252,144	-10.6	.216	.161	+.055	+4.3
Vt.	13,172	13,300	-00.4	.455	.488	-.033	-1.1
Mass.	136,988	258,415	-47.0	.135	.115	+.020	+4.2
R. I.	-	-	-	-	-	-	-
Conn.	44,586	34,597	+28.9	.130	.232	-.102	-2.8
N. Y.	107,263	127,756	-16.0	.496	.512	-.016	-1.9
Totals	722,561	919,755	-21.4	.210	.186	+.024	+2.4

No wild Ribes eradication work was conducted in Rhode Island during 1930. Control activities in this state were confined to cultivated black currant work. A total of 3010 bushes (not included in the regular eradication summaries) were destroyed in connection with this project. A detailed summary is given on page 53 of this report.

As shown in the preceding table, less acreage was cleared of Ribes during 1930 than in 1929 in all states except Connecticut where an increase of 28.9% occurred. The decreases in acreage eradicated of Ribes in 1930 can be attributed primarily to three causes: namely, (1) cleaning up of odd jobs; (2) more time and effort given to special control projects (black currant eradication and nursery sanitation); and (3) the general business depression.

DETAILED SUMMARY AND ANALYSIS BY STATES OF THE PROJECT "RIBES ERADICATION"
IN NEW ENGLAND AND NEW YORK DURING 1930.

This information will be summarized and discussed according to the three following classes of Ribes eradication: (I) Initial and Re-eradication (pages 30 to 37), (II) Initial work (pages 38 to 43 , and (III) Re-eradication work (pages 44 to 48). Each of these three classes is further subdivided into the five kinds of control work, namely: (A) Individual Cooperation, (B) Town Cooperation, (C) State work on individuals' lands, (D) State work on public lands, and (E) Nursery sanitation work.

I. - INITIAL AND RE-ERADICATION WORK

A. - Individual Cooperation in Ribes Eradication In New England And New York During 1930.

State	No. Cooperators		% of Total No. Cooperators (Wild Ribes Eradication) In Northeastern States Obtained In Each State	Total Cost to Individuals	% of Total Cost to Individuals in Northeastern States Shared by Co-operators in Each State
	Wild & Cult. Ribes Erad.	Cult. Ribes Erad. Only			
Maine	955	41	39.2	\$7,804.69	21.6
N. H.	18	-	0.7	2,125.50	5.9
Vt.	189	32	7.8	4,598.08	12.7
Mass.	656	898	26.9	5,130.50	14.2
Conn.	41	-	1.7	1,333.11	3.7
N. Y.	576	-	23.7	15,109.59	41.9
Totals	2435	971	100.0	36,101.47	100.0

This summary includes expenditures by individuals on the regular control work, nursery sanitation, and black currant eradication. It also includes \$76.25 paid by individuals (nurserymen) for Ribes compensation in Connecticut.

Results Of Individual Cooperation In Ribes Eradication Work,
With And Without State Supervision, In New England And New York
During 1930.

Initial And Re-Eradication Work

State		Maine	N.H.	Vt.	Mass.	Conn.	N.Y.	Totals
Coop. Erad.	Cult. Ribes Only	41	-	32	64	-	-	137
	Wild and Cult. Ribes	944	18	189	656	26	576	2,409
Acreage Examined		15,533	6,084	12,652	57,685	2,544	58,890	153,388
Wild Ribes Pulled		1,600,305	93,586	92,406	272,017	6,724	980,677	3,045,715
Cult. Ribes Pulled		10,119	416	108	3,471	695	3,693	18,502
Cost	State	0	\$516.59	\$652.40	\$4691.58	\$545.00	15189.18	\$21594.75
	Federal	0	0	403.50	0	132.50	0	536.00
	Towns	6035.51	0	39.37	0	0	0	6074.88
	Individuals	6728.24	2125.50	4598.08	4435.00	569.00	15109.59	33,565.41
	TOTAL	12,763.75	2642.09	5693.35	9126.58	1246.50	30298.77	61,771.04
Cost per acre		.822	.434	.450	.158	.490	.514	.403
Ribes per acre		103.0	15.4	7.3	4.7	2.6	16.6	19.8

In addition to the cooperation listed above, the following individual money was expended in connection with other classes of control work: town projects in Maine, \$752.00; state scouting work in Connecticut, \$26.50; nursery sanitation projects in Maine and Connecticut, \$985.81; Ribes compensation in Connecticut \$76.25; and black currant eradication in Massachusetts \$695.50.

The federal expenditure in Vermont was for a foreman who supervised the work done by individuals; the federal funds used in Connecticut represent the cost of temporary agents while assisting individuals on control work.

Over 90 percent of the total number of individual cooperators were from the states of Maine, Massachusetts and New York. Of the total acreage worked in cooperation with individual owners, 37.6% was in Massachusetts and 38.4% in New York. The expenditures by individuals in New York represents 41.9% of the total amount spent by all such cooperators in the Northeastern States during 1930.

The total acreage worked in cooperation with individuals represents 21.2% of the total area cleared of Ribes in New England and New York during 1930.

The total cost of this cooperative work with individuals was shared on the following basis: Individuals, 54.3%; States 35.0%; Towns, 9.8%; and Government, 0.9%. The percent of the total cost of such work in each state, paid by individual cooperators in the respective states is as follows: Maine, 52.7%; New Hampshire, 80.4%; Vermont, 80.8%; Massachusetts, 48.6%; Connecticut, 45.6%; and New York, 49.9%.

The percent of increase or decrease in amount of all individual cooperation during 1930 over 1929 is as follows:

Number cooperators eradicating cultivated Ribes only.....	-86.5%
Number cooperators eradicating wild and cultivated Ribes....	-28.1%
Number acres eradicated.....	-45.6%
Number wild Ribes pulled.....	-29.1%
Number cultivated Ribes pulled.....	-54.0%
(States.....)	-40.3%
(Federal.....)	+436.0%
Cost (Towns.....)	-13.3%
(Individuals.....)	-33.4%
(Total.....)	-34.0%
Cost per acre.....	+21.4%
Ribes per acre.....	+30.3%

The large decreases in most of the above items are due in part to the fact that in 1929 all nursery sanitation work was included under "Individual Cooperation", while in 1930 such work is recorded separately.

B. - Town Cooperation In Ribes Eradication In New England
And New York During 1930.

(Initial And Re-Eradication Work)

State	No. Towns Approp.	% Total Number in Each State	Amount Town Funds Appropriated	% Total Funds Approp. In Each State	Amount Town Funds Expended	% Total Funds Used in Each State
Maine	56	30.1	\$9,100.00	19.2	\$8,971.81	19.5
N. H.	127	68.3	37,950.00	80.1	36,875.44	79.9
Vt.	1	0.5	100.00	0.2	39.37	0.1
Conn.	2	1.1	241.50	0.5	241.50	0.5
Totals	186	100.0	\$47,391.50	100.0	\$46,128.12	100.0

The town money in Maine was used chiefly to pay the wages of town foremen, who supervised the work performed by individuals. However, in five towns (Bar Harbor, Mount Desert, Portland, Readfield and Westbrook) such money was used to eradicate Ribes from definite blocks irrespective of property lines. In New Hampshire and Connecticut, town funds were also utilized solely to conduct control work in specific units regardless of individual properties. The town appropriation money in New Hampshire was increased 20 percent by the State in all towns except 40 where state compulsory measures were applied. The town funds in Connecticut were derived from two sources - town appropriations and individual subscriptions for town projects. Two Connecticut towns appropriated \$100.00 each for control work during 1930 and individuals in these towns contributed an additional \$41.50 for the local project. The town money in Vermont was used to pay excess labor charges of foremen supervising the work of individuals.

Results Of Town Cooperation In Ribes Eradication During 1930
In New England

(Initial And Re-Eradication Work)

State		Maine	N. H.	Conn.	Totals
Acreage examined		5,234	219,119	16,774	241,127
Wild Ribes pulled		247,252	2,751,310	29,054	3,027,616
Cult. Ribes pulled		138	2,781	880	3,799
Cost	Towns	\$2,936.30	\$36,875.44	\$241.50	\$40,053.24
	Individuals	752.00	-	-	752.00
	State	-	9,218.50	385.80	9,604.30
	Federal	-	-	659.17	659.17
	Total	\$3,688.30	\$46,093.94	\$1,286.47	\$51,068.71
Cost per acre		.701	.210	.077	.212
Ribes per acre		47.2	12.5	1.7	12.6

The total acreage worked on the basis of town cooperation (241,127 acres) represents 33.4% of the total area cleared of Ribes in New England and New York during 1930. Of the total acreage worked in cooperation with towns, 90.9% was in New Hampshire.

The individual funds expended on town projects in Maine were contributed by ten summer residents of Seal Harbor and the Village Improvement Societies of Seal Harbor and Northeast Harbor. This money was used in conjunction with the town control project of Mt. Desert.

The federal funds expended on town projects in Connecticut were for Ribes scouting purposes.

The percent of increase or decrease in town work during 1930 over 1929 is as follows:

Acreage eradicated.....	- 7.3%
Wild Ribes pulled.....	+35.4%
Cult. Ribes pulled.....	-74.7%
(Towns.....)	+16.7%
Cost (State.....)	+ 2.2%
(Govt.....)	-19.4%
(Total.....)	+14.7%
Cost per acre.....	+24.6%
Ribes per acre.....	+46.5%

C.- Eradication Of Ribes, By States, On Individuals' Lands In
New England And New York During 1930.

(Initial And Re-Eradication Work)

State		Maine	Mass.	Conn.	N. Y.	Totals
Acreage examined		174,356	66,956	9,621	28,137	279,070
Wild Ribes pulled		36,279	68,624	2,206	29,897	137,006
Cult. Ribes pulled		316	3,519	2,012	755	6,602
Cost	State	\$1,383.57	\$5,797.16	\$586.66	\$3,719.71	\$11,487.10
	Individuals	-	-	26.50	-	26.50
	Govt.	1,539.42	-	745.83	-	2,285.25
	Total	2,922.99	5,797.16	1,358.99	3,719.71	13,798.85
Cost per acre		.017	.087	.141	.132	.049
Ribes per acre		0.2	1.0	0.2	1.1	0.5

The total acreage of such non-cooperative state work on individually owned lands (279,070 acres) represents 38.6% of the total area cleared of Ribes in New England and New York during 1930. In Maine, 89.3% of all the control work in the state was performed on this basis, while in Massachusetts, Connecticut, and New York, it amounted to 48.9%, 21.6% and 26.2%, respectively.

In Massachusetts and New York, the state paid all costs of such work, while in Maine and Connecticut, the Government paid 52.7% and 54.9% of the scouting costs. Three individuals in Connecticut also contributed \$26.50 for this scouting work during 1930.

The percent of increase or decrease in 1930 over similar non-cooperative Ribes eradication work on private lands in 1929 is as follows:

Acreage eradicated.....	-17.5%
Wild Ribes pulled.....	+ 9.3%
Cult. Ribes pulled.....	-53.8%
(State.....)	- 0.4%
Cost (Govt.....)	+28.6%
(Individuals.....)	-64.4%
(Total.....)	+ 3.1%
Cost per acre.....	+22.5%
Ribes per acre.....	+20.0%

D.- Ribes Eradication Work On Public Lands In New England
And New York During 1930.

(Initial And Re-Eradication Work)

State		Vt.	Mass.	Conn.	N. Y.	Totals
Acreage examined		470	12,150	656	11,194	24,470
Wild Ribes pulled		2,205	683,730	6,175	391,615	1,083,725
Cult. Ribes pulled		-	1,165	8	23	1,196
Cost	State	\$210.36	\$3,196.59	\$224.50	\$16,111.82	\$19,743.27
	Govt.	-	-	125.00	-	125.00
	Total	210.36	3,196.59	349.50	16,111.82	19,868.27
Cost per acre		.447	.263	.533	1.44	.812
Ribes per acre		4.7	56.3	9.4	35.0	44.3

The total acreage (24,470 acres) eradicated on public lands represents only 3.4% of the total area cleared of Ribes in New England and New York during 1930. The above summary does not include the special federal control projects as listed on page 74 of this report.

The blister rust control agents supervised all the control work performed on state lands during 1930. All costs of the work were paid from state funds except \$125.00 federal money used for scouting work on such projects in Connecticut conducted in cooperation with the State Forestry Department, which expended \$199.50 in addition to \$25.00 spent from regular state blister rust appropriation funds. In Massachusetts, this work was conducted in cooperation with four other state departments, \$1946.65 being expended by these agencies and \$1249.94 from the regular state appropriation for blister rust control. Ribes eradication work on state lands in New York was conducted in nine of the twelve control districts.

The percent of increase or decrease in 1930 over similar state land work conducted in 1929 is as follows:

Acreage eradicated.....	-37.3%
Wild Ribes pulled.....	+78.7%
Cult. Ribes pulled.....	-76.8%
Total Cost.....	+ 0.7%
Cost per acre.....	+60.5%
Ribes per acre.....	+185.8%

E.-Ribes Eradication Work In Connection With Nursery Sanitation
Projects In New England And New York During 1930

(Initial and Re-Eradication Work)

State		Maine	N. H.	Vt.	Mass.	Conn.	N. Y.	Totals
No. nurseries worked		1	1	1	3	13	5	24
Acreage examined		126	100	50	197	14,991	9,042	24,506
Wild Ribes pulled		101,114	-	90	270	3,544	53,314	158,332
Cult. Ribes pulled		-	-	-	129	643	53	825
Cost	Individuals	\$324.45	-	-	-	\$661.36	-	\$985.81
	State	146.00	10.08	92.51	336.82	880.69	3101.82	4567.92
	Total	\$470.45	\$10.08	\$92.51	\$336.82	\$1542.05	\$3101.82	\$5553.73
Cost per acre		\$ 3.73	\$.10	\$1.85	\$1.71	\$.103	\$.343	\$.227
Ribes per acre		802.5	-	1.8	1.4	0.2	5.9	6.5

The sanitation project in Maine was performed at the Brown Company Nursery at Oquossoc, while the work in New Hampshire and Vermont was conducted at the state nurseries. In Massachusetts, one commercial nursery was initially protected and two others were re-examined for Ribes, the state paying all costs. The sanitation work in Connecticut was carried on around twelve commercial nurseries and one state nursery, nine of the projects being re-eradication work. In New York, this control work was limited to re-examination of the five state nurseries.

The total acreage of the special nursery sanitation projects in New England and New York represents 3.4 percent of the total area cleared of Ribes in these states during 1930.

Prior to 1930, a separate summary was not kept for the nursery sanitation projects. Such control work in cooperation with commercial nurseries was included under "Individual Cooperation", which state nursery projects were incorporated under "Work on Public Lands".

II. INITIAL CONTROL WORK.

Summary Of Total Initial Ribes Eradication Work In New England And New York During 1930.

State	Acreage Initially Examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult		Cost	Ribes
Maine	194,439	1,957,380	10,357	\$19,266.54	.099	10.1
N. H.	218,137	2,807,150	3,192	47,766.94	.219	12.9
Vt.	7,295	74,129	83	4,335.96	.594	10.2
Mass.	108,730	996,453	8,152	15,352.32	.141	9.2
R. I.	-	-	-	-	-	-
Conn.	31,167	35,595	3,242	3,412.13	.109	1.1
N. Y.	89,894	1,306,498	4,302	47,116.14	.524	14.5
Total	649,662	7,177,205	29,328	\$137,250.03	.211	11.0

The total acreage initially cleared of Ribes (649,662 acres) represents 89.9% of all eradication work conducted in New England and New York during 1930.

STATE OF NEW YORK

SENATE
 JANUARY 18, 1892

NAME	RESIDENCE	EDUCATION	PROFESSION	RELIGION	PARTY
ALBION B. KENDRICK	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.
JOHN W. BROWN	ALBANY	YALE	CLERGY	METHODIST	DEM.

JOHN W. BROWN, Secretary
 JOHN W. BROWN, Secretary
 JOHN W. BROWN, Secretary

A.- Initial Ribes Eradication In Cooperation With Individuals
In New England And New York During 1930.

State		Maine	N.H.	Vt.	Mass.	Conn.	N.Y.	Totals
Coop. Erad.	Cult.Ribes Only	41	-	32	64	-	-	137
	Wild and Cult.Ribes	921	14	138	550	5	526	2,154
Acres examined initially		14,723	3,791	6,945	43,322	896	52,999	122,676
Wild Ribes pulled		1,572,735	79,178	72,394	252,955	2,296	931,579	2,911,137
Cult.Ribes pulled		9,903	415	83	3,471	258	3,602	17,732
Cost	State	-	449.75	372.50	3906.22	193.33	14,216.20	19,274.95
	Towns	5818.08	-	10.87	-	-	-	5,828.95
	Individuals	6366.72	1858.16	3214.83	3296.50	181.00	14,097.84	29,015.05
	Gov't.	-	-	372.50	-	40.00	-	412.50
	Total	12184.80	2307.91	4107.65	7202.72	414.33	28,314.04	54,531.45
Cost per acre		.828	.609	.591	.166	.462	.534	.445
Ribes per acre		106.8	20.9	10.4	5.8	2.6	17.6	23.7

The initial eradication work conducted in cooperation with individuals (122,676 acres) represents 18.9% of all initial control work performed in New England and New York during 1930. Of the total acreage initially worked in cooperation with individuals, 43.2% was in New York and 35.3% in Massachusetts. Individual cooperators in New York contributed 48.6% of the total amount of private funds used in all states on this type of work.

B.- Town Cooperation In Initial Ribes Eradication In New England and New York During 1930.

State	No. Towns Approp.	%Total No. In Each State	Amount Town Money Expended	% Total Funds Expended in Each State
Maine	56	30.4	\$8,754.38	19.3
N. H.	125	67.9	36,367.51	80.1
Vt.	1	0.6	10.87	0.1
Conn.	2	1.1	241.50	0.5
Totals	184	100.0	\$45,374.26	100.0

In thirteen of the towns listed above (6 in Maine, 6 in New Hampshire, and 1 in Vermont) a part of the money was used for re-eradication work.

The town funds in Maine were used chiefly to pay the wages of town foremen, who supervised the work performed by individuals. However, in five towns, such money was used to employ crews to eradicate Ribes from definite blocks irrespective of property lines. Likewise, in New Hampshire and Connecticut, all the town funds were employed solely to conduct control work in specific areas. The State of New Hampshire increased the amount of town money by twenty percent, and in Connecticut \$385.80 state money and \$659.17 federal funds were used on town projects. The small amount of town funds in Vermont (\$10.87) paid excess labor charges of a foreman supervising the work of individuals.

Results Of Town Cooperation In Initial Ribes Eradication
In New England And New York During 1930.

State		Maine	N. H.	Conn.	Totals
Acreage examined		5,234	214,346	16,774	236,354
Wild Ribes pulled		247,252	2,727,972	29,054	3,004,278
Cult. Ribes pulled		138	2,777	880	3,795
Cost	Towns	\$2,936.30	\$36,367.51	\$241.50	\$39,545.31
	State	-	9,091.52	385.80	9,477.32
	Individuals	752.00	-	-	752.00
	Govt.	-	-	659.17	659.17
	Total	\$3,688.30	\$45,459.03	\$1,286.47	\$50,433.80
Cost per acre		.705	.212	.077	.213
Ribes per acre		47.2	12.7	1.7	12.7

The total acreage initially cleared of Ribes in cooperation with towns (236,354 acres) comprises 36.4% of the total initial work completed in New England and New York during 1930. Ninety percent of this acreage initially eradicated of Ribes in cooperation with towns was in New Hampshire.

C.- Initial Ribes Eradication Work By States On Individuals'
Lands In New England And New York During 1930.

State		Maine	Mass.	Conn.	N. Y.	Totals
Acreage examined		174,356	53,411	9,583	27,169	264,519
Wild Ribes pulled		36,279	63,241	1,980	29,470	130,970
Cult. Ribes pulled		316	3,436	2,002	698	6,452
Cost	State	\$1,383.57	\$4,967.37	\$556.66	\$3,642.31	\$10,549.91
	Individuals	-	-	10.50	-	10.50
	Gov't.	1,539.42	-	745.83	-	2,285.25
	Total	\$2,922.99	\$4,967.37	\$1,312.99	\$3,642.31	\$12,845.66
Cost per acre		.017	.093	.137	.134	.049
Ribes per acre		0.2	1.2	0.2	1.1	0.5

The acreage worked on this basis (264,519 acres) represents 40.7 percent of the total acreage initially cleared of Ribes in New England and New York during 1930.

D.- Initial Ribes Eradication Work On Public Lands In New
England And New York During 1930.

State	Vt.	Mass.	N. Y.	Totals
Acreage examined	300	11,950	9,726	21,976
Wild Ribes pulled	1,645	680,180	345,449	1,027,274
Cult. Ribes pulled	-	1,165	2	1,167
Total cost	\$135.80	\$3,124.69	\$15,159.79	\$18,420.28
Cost per acre	.453	.261	1.56	.838
Ribes per acre	5.5	56.9	35.5	46.7

The initial eradication work on public lands (21,976 acres) represents 3.4 percent of the total acreage initially cleared of Ribes in New England and New York during 1930. All costs of this work were paid by the respective states.

E.- Initial Ribes Eradication Work In Connection With Nursery
Sanitation Projects In New England And New York
During 1930.

State		Maine	Vt.	Mass.	Conn.	Totals
No. Nurseries worked		1	1	1	4	7
Acreage examined		126	50	47	3,914	4,137
Wild Ribes pulled		101,114	90	77	2,265	103,546
Cult. Ribes pulled		0	0	80	102	182
Cost	Individuals	\$324.45	0	0	\$204.32	\$528.77
	State	146.00	92.51	57.54	194.02	490.07
	Total	\$470.45	\$92.51	\$57.54	\$398.34	\$1,018.84
Cost per acre		3.73	1.85	1.22	.102	.246
Ribes per acre		802.5	1.8	1.6	0.6	25.0

The total area (4,137 acres) worked in connection with special nursery sanitation projects represents only 0.6% of the total acreage initially cleared of Ribes in New England and New York during 1930.

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CONTENTS		PAGE	
Original Article	1	1	1
Report of the Committee on the Practice of Medicine	2	2	2
Report of the Committee on the Practice of Surgery	3	3	3
Report of the Committee on the Practice of Obstetrics	4	4	4
Report of the Committee on the Practice of Pediatrics	5	5	5
Report of the Committee on the Practice of Dermatology	6	6	6
Report of the Committee on the Practice of Ophthalmology	7	7	7
Report of the Committee on the Practice of Otorhinolaryngology	8	8	8
Report of the Committee on the Practice of Radiology	9	9	9
Report of the Committee on the Practice of Pathology	10	10	10
Report of the Committee on the Practice of Pharmacology	11	11	11
Report of the Committee on the Practice of Therapeutics	12	12	12
Report of the Committee on the Practice of Hygiene	13	13	13
Report of the Committee on the Practice of Public Health	14	14	14
Report of the Committee on the Practice of Social Medicine	15	15	15
Report of the Committee on the Practice of Preventive Medicine	16	16	16
Report of the Committee on the Practice of Health Education	17	17	17
Report of the Committee on the Practice of Health Administration	18	18	18
Report of the Committee on the Practice of Health Economics	19	19	19
Report of the Committee on the Practice of Health Law	20	20	20
Report of the Committee on the Practice of Health Ethics	21	21	21
Report of the Committee on the Practice of Health Policy	22	22	22
Report of the Committee on the Practice of Health Planning	23	23	23
Report of the Committee on the Practice of Health Development	24	24	24
Report of the Committee on the Practice of Health Evaluation	25	25	25
Report of the Committee on the Practice of Health Research	26	26	26
Report of the Committee on the Practice of Health Innovation	27	27	27
Report of the Committee on the Practice of Health Implementation	28	28	28
Report of the Committee on the Practice of Health Monitoring	29	29	29
Report of the Committee on the Practice of Health Assessment	30	30	30
Report of the Committee on the Practice of Health Improvement	31	31	31
Report of the Committee on the Practice of Health Promotion	32	32	32
Report of the Committee on the Practice of Health Protection	33	33	33
Report of the Committee on the Practice of Health Maintenance	34	34	34
Report of the Committee on the Practice of Health Restoration	35	35	35
Report of the Committee on the Practice of Health Rehabilitation	36	36	36
Report of the Committee on the Practice of Health Support	37	37	37
Report of the Committee on the Practice of Health Care	38	38	38
Report of the Committee on the Practice of Health Services	39	39	39
Report of the Committee on the Practice of Health Systems	40	40	40
Report of the Committee on the Practice of Health Organizations	41	41	41
Report of the Committee on the Practice of Health Networks	42	42	42
Report of the Committee on the Practice of Health Partnerships	43	43	43
Report of the Committee on the Practice of Health Coalitions	44	44	44
Report of the Committee on the Practice of Health Alliances	45	45	45
Report of the Committee on the Practice of Health Collaborations	46	46	46
Report of the Committee on the Practice of Health Partnerships	47	47	47
Report of the Committee on the Practice of Health Coalitions	48	48	48
Report of the Committee on the Practice of Health Alliances	49	49	49
Report of the Committee on the Practice of Health Collaborations	50	50	50
Report of the Committee on the Practice of Health Partnerships	51	51	51
Report of the Committee on the Practice of Health Coalitions	52	52	52
Report of the Committee on the Practice of Health Alliances	53	53	53
Report of the Committee on the Practice of Health Collaborations	54	54	54
Report of the Committee on the Practice of Health Partnerships	55	55	55
Report of the Committee on the Practice of Health Coalitions	56	56	56
Report of the Committee on the Practice of Health Alliances	57	57	57
Report of the Committee on the Practice of Health Collaborations	58	58	58
Report of the Committee on the Practice of Health Partnerships	59	59	59
Report of the Committee on the Practice of Health Coalitions	60	60	60
Report of the Committee on the Practice of Health Alliances	61	61	61
Report of the Committee on the Practice of Health Collaborations	62	62	62
Report of the Committee on the Practice of Health Partnerships	63	63	63
Report of the Committee on the Practice of Health Coalitions	64	64	64
Report of the Committee on the Practice of Health Alliances	65	65	65
Report of the Committee on the Practice of Health Collaborations	66	66	66
Report of the Committee on the Practice of Health Partnerships	67	67	67
Report of the Committee on the Practice of Health Coalitions	68	68	68
Report of the Committee on the Practice of Health Alliances	69	69	69
Report of the Committee on the Practice of Health Collaborations	70	70	70
Report of the Committee on the Practice of Health Partnerships	71	71	71
Report of the Committee on the Practice of Health Coalitions	72	72	72
Report of the Committee on the Practice of Health Alliances	73	73	73
Report of the Committee on the Practice of Health Collaborations	74	74	74
Report of the Committee on the Practice of Health Partnerships	75	75	75
Report of the Committee on the Practice of Health Coalitions	76	76	76
Report of the Committee on the Practice of Health Alliances	77	77	77
Report of the Committee on the Practice of Health Collaborations	78	78	78
Report of the Committee on the Practice of Health Partnerships	79	79	79
Report of the Committee on the Practice of Health Coalitions	80	80	80
Report of the Committee on the Practice of Health Alliances	81	81	81
Report of the Committee on the Practice of Health Collaborations	82	82	82
Report of the Committee on the Practice of Health Partnerships	83	83	83
Report of the Committee on the Practice of Health Coalitions	84	84	84
Report of the Committee on the Practice of Health Alliances	85	85	85
Report of the Committee on the Practice of Health Collaborations	86	86	86
Report of the Committee on the Practice of Health Partnerships	87	87	87
Report of the Committee on the Practice of Health Coalitions	88	88	88
Report of the Committee on the Practice of Health Alliances	89	89	89
Report of the Committee on the Practice of Health Collaborations	90	90	90
Report of the Committee on the Practice of Health Partnerships	91	91	91
Report of the Committee on the Practice of Health Coalitions	92	92	92
Report of the Committee on the Practice of Health Alliances	93	93	93
Report of the Committee on the Practice of Health Collaborations	94	94	94
Report of the Committee on the Practice of Health Partnerships	95	95	95
Report of the Committee on the Practice of Health Coalitions	96	96	96
Report of the Committee on the Practice of Health Alliances	97	97	97
Report of the Committee on the Practice of Health Collaborations	98	98	98
Report of the Committee on the Practice of Health Partnerships	99	99	99
Report of the Committee on the Practice of Health Coalitions	100	100	100

THE JOURNAL OF THE
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III. RE-ERADICATION WORK

Summary of Total Ribes Re-Eradication Work in New England and New York During 1930.

State	Acreage Re-examined	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Maine	810	27,570	216	\$578.95	\$.715	34.0
N. H.	7,166	37,746	5	979.17	.137	5.3
Vt.	5,877	20,572	25	\$1,660.26	.283	3.5
Mass.	28,258	28,188	132	3,104.83	.110	1.0
Conn.	13,419	12,108	996	2,371.38	.177	0.9
N. Y.	17,369	149,005	222	6,115.98	.352	8.6
Totals	72,899	275,189	1,596	14,810.57	.203	3.8

The total acreage re-worked (72,899 acres) represents 10.1% of all cooperative eradication work conducted in New England and New York during 1930. Of the total area re-examined, 38.8% was in Massachusetts where 20.6% of the control work was re-eradication. The acreage re-eradicated of Ribes in Vermont represents 44.6% of all the work done in that state, while in Connecticut, New York, New Hampshire and Maine, the percentages on a similar basis amount to 30.1%, 16.2%, 3.2% and 0.4%, respectively.

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A.- Ribes Re-Eradication In Cooperation With Individuals
In New England And New York During 1930.

State		Maine	N. H.	Vt.	Mass.	Conn.	N. Y.	Totals
Coop. Erad.	Cult. Ribes Only	0	0	0	0	0	0	0
	Wild and Cult. Ribes	33	5	51	106	21	50	266
Acreage Re-examined		810	2,293	5,707	14,363	1,648	5,891	30,712
Wild Ribes destroyed		27,570	14,408	20,012	19,062	4,428	49,098	134,578
Cult. Ribes destroyed		216	1	25	0	437	91	770
Total Cost	State	0	\$66.84	\$142.95	\$785.36	\$351.67	\$972.98	\$2,319.80
	Towns	217.43	0	28.50	0	0	0	245.93
	Individuals	361.52	267.34	1383.25	1138.50	388.00	1011.75	4,550.36
	Federal	0	0	31.00	0	92.50	0	123.50
	Total	578.95	334.18	1585.70	1923.86	832.17	1984.73	7,239.59
Cost per acre		.715	.146	.278	.134	.505	.337	.236
Ribes per acre		34.0	6.3	3.5	1.3	2.7	8.3	4.4

The re-eradication work conducted in cooperation with individuals (30,712 acres) represents 42.1% of the total area re-examined in New England and New York during 1930, and 20.0% of all the work (initial and re-eradication) done in cooperation with individuals. As in the preceding tables on individual cooperation, this summary includes both the work done with and without direct state supervision.

B.- Town Cooperation In Ribes Re-Eradication In New England
And New York During 1930.

State	No. Towns Approp.	% Total Number In Each State	Amount Town Money Expended	% Total Funds Ex- pended in Each State
Maine	6	40.0	\$217.43	28.8
N. H.	8	53.5	507.93	67.4
Vt.	1	6.7	28.50	3.8
Totals	15	100.0	\$753.86	100.0

The town funds in Maine were used to pay the wages of town foremen, who supervised the work done by individuals; while in New Hampshire, the town money was turned over to the State and used to eradicate Ribes from definite blocks regardless of property lines. In Vermont, the town funds were used to pay excess labor charges of foremen supervising the work of individuals. Initial control work was also conducted in all of the towns listed above, except two in New Hampshire.

Results Of Town Cooperation In Re-Eradication Of Ribes
In New England And New York During 1930.

New Hampshire was the only state which conducted any re-eradication work on a township basis during 1930; 4,773 acres being cleared of 23,338 wild Ribes and 4 cultivated bushes at a cost of \$507.93 to the towns and \$126.98 to the state, or a total of \$634.91. This acreage (4,773 acres) re-worked in cooperation with towns represents only 6.5% of the total area re-examined in New England and New York during 1930.

C.- Ribes Re-Eradication Work By State On Individuals' Lands
In New England And New York During 1930.

State	Acreage Re-Examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
Mass.	13,545	5,383	83	\$829.79	.061	0.4
Conn.	38	226	10	46.00*	1.21	5.9
N. Y.	968	427	57	77.40	.080	0.4
Totals	14,551	6,036	150	\$953.19	.066	0.4

*Includes \$16.00 expended by one individual in connection with such work. All other costs paid by respective states.

This re-eradication work on individuals' lands (14,551 acres) represents 20.0% of the total area re-examined in New England and New York during 1930.

D.- Ribes Re-Eradication Work On Public Lands In New England
And New York During 1930.

State	Acreage Re-Examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
Vt.	170	560	0	\$74.56	.438	3.3
Mass.	200	3,550	0	71.90	.360	17.8
Conn.	656	6,175	8	349.50*	.533	9.4
N. Y.	1,468	46,166	21	952.03	.648	31.4
Totals	2,494	56,451	29	\$1,447.99	.580	22.6

*Includes \$125.00 Federal expenditure for scout work. All other costs paid by respective states.

This re-eradication work on public lands (2,494 acres) represents only 3.4% of the total area re-examined in New England and New York during 1930.

TABLE 1. - SUMMARY OF DATA FOR THE FIRST TWO YEARS OF THE STUDY

Year	Month	Day	Time	Location	Depth	Temperature	Salinity	Density	Wind	Clouds	Sea	Weather	Remarks
1954	Jan	1	0800	Station 1	10	10.0	35.0	1.020	10	10	10	10	10
1954	Jan	2	0800	Station 2	10	10.0	35.0	1.020	10	10	10	10	10
1954	Jan	3	0800	Station 3	10	10.0	35.0	1.020	10	10	10	10	10
1954	Jan	4	0800	Station 4	10	10.0	35.0	1.020	10	10	10	10	10
1954	Jan	5	0800	Station 5	10	10.0	35.0	1.020	10	10	10	10	10

TABLE 2. - SUMMARY OF DATA FOR THE THIRD AND FOURTH YEARS OF THE STUDY

Year	Month	Day	Time	Location	Depth	Temperature	Salinity	Density	Wind	Clouds	Sea	Weather	Remarks
1955	Jan	1	0800	Station 1	10	10.0	35.0	1.020	10	10	10	10	10
1955	Jan	2	0800	Station 2	10	10.0	35.0	1.020	10	10	10	10	10
1955	Jan	3	0800	Station 3	10	10.0	35.0	1.020	10	10	10	10	10
1955	Jan	4	0800	Station 4	10	10.0	35.0	1.020	10	10	10	10	10
1955	Jan	5	0800	Station 5	10	10.0	35.0	1.020	10	10	10	10	10

TABLE 3. - SUMMARY OF DATA FOR THE FIFTH AND SIXTH YEARS OF THE STUDY

Year	Month	Day	Time	Location	Depth	Temperature	Salinity	Density	Wind	Clouds	Sea	Weather	Remarks
1956	Jan	1	0800	Station 1	10	10.0	35.0	1.020	10	10	10	10	10
1956	Jan	2	0800	Station 2	10	10.0	35.0	1.020	10	10	10	10	10
1956	Jan	3	0800	Station 3	10	10.0	35.0	1.020	10	10	10	10	10
1956	Jan	4	0800	Station 4	10	10.0	35.0	1.020	10	10	10	10	10
1956	Jan	5	0800	Station 5	10	10.0	35.0	1.020	10	10	10	10	10

TABLE 4. - SUMMARY OF DATA FOR THE SEVENTH AND EIGHTH YEARS OF THE STUDY

Year	Month	Day	Time	Location	Depth	Temperature	Salinity	Density	Wind	Clouds	Sea	Weather	Remarks
1957	Jan	1	0800	Station 1	10	10.0	35.0	1.020	10	10	10	10	10

E.- Ribes Re-Eradication In Connection With Nursery Sanitation
Projects In New England And New York During 1930.

State		N. H.	Mass.	Conn.	N. Y.	Totals
No. Nurseries re-examined		1	2	9	5	17
Acreage re-examined		100	150	11,077	9,042	20,369
Wild Ribes pulled		-	193	1,279	53,314	54,786
Cult. Ribes pulled		-	49	541	53	643
Cost	Individuals	-	-	\$457.04	-	\$457.04
	State	\$10.08	\$279.28	686.67	\$3,101.82	4,077.85
	Total	\$10.08	\$279.28	\$1,143.71	\$3,101.82	\$4,534.89
Cost per acre		.10	1.86	.103	.343	.223
Ribes per acre		-	1.3	0.1	5.9	2.7

This re-eradication work in connection with special nursery sanitation projects (20,369 acres) represents 28.0% of the total area re-examined in New England and New York during 1930.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State New England and New YorkPeriod 1930

REGULAR CONTROL WORK

DISTRICTS, (States)			Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	TOTALS FOR All STATES
AGENTS' NAMES,										
Period of service this year										
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,	41	—	32	64		—	—	137
		Wild and cult. Ribes	922	13	138	550		7	526	2156
	Acreage erad.,		14723	3791	6945	43322		896	52,999	122,676
	Wild Ribes erad.,		1,572,735	79,178	72,394	252,955		2,296	931,579	2,911,137
	Cult. Ribes erad.,		9,903	415	83	3,471		258	3,602	17,732
	Total cost	Individuals,	6366.72	1858.16	3214.83	3296.50		181.00	14097.84	29015.05
		Towns, Towns Govt.	5818.08	—	10.87	—		40.00	—	5828.95
		State,	—	449.75	509.45	3906.22		193.33	14216.20	19274.95
		Total,	12,184.80	2307.91	4107.65	7202.72		414.33	28,314.04	54531.45
	Cost per acre,		.828	.609	.591	.166		.462	.534	.445
Ribes per acre,		106.8	20.9	10.4	57.8		2.6	17.6	23.7	
TOWN COOPERATION	Town approp.	Number,	56	125	1	—		2	—	184
		Amount expended	8754.38	36367.51	10.87	—		241.50	—	45,374.26
	Acreage erad.,		5234	214,346	—	—		16,774	—	236,354
	Wild Ribes erad.,		247,252	2,272,972	—	—		29,054	—	3,004,278
	Cult. Ribes erad.,		138	2777	—	—		880	—	3795
	Total cost	Towns, Towns Individuals	2936.30	36,367.51	—	—		241.50	—	39,545.31
		State, State Govt.	752.00	9091.52	—	—		385.80	—	9477.32
		State, State Govt.	—	—	—	—		659.17	—	659.17
		Total,	3688.30	45,459.03	—	—		1,286.47	—	50,433.80
	Cost per acre,		.705	.212	—	—		.077	—	.213
Ribes per acre, Individuals		47.2	12.7	—	—		1.7	—	12.7	
INDIVIDUALS' LANDS	Acreage erad.		174,356	—	—	53,411		9583	27169	264,519
	Wild Ribes erad.		36279	—	—	63,241		1980	29470	130,970
	Cult. Ribes erad.		316	—	—	3,436		2002	698	6452
	Cost to State,		1383.57	—	—	4,967.37		556.66	3642.31	10,549.91
	Cost to Govt.,		1539.42	—	—	—		10.50	—	10.50
	Total Cost		2922.99	—	—	4,967.37		745.83	—	2285.25
	Cost per acre,		.017	—	—	.093		.137	.134	.049
	Ribes per acre,		0.2	—	—	1.2		0.2	1.1	0.5
	Acreage erad.,		—	—	300	11,950		—	9726	21,976
	Wild Ribes erad.,		—	—	1645	680,180		—	345449	1,027,274
PUBLIC LANDS	Cult. Ribes erad.,		—	—	—	1165		—	2	1167
	Total cost,		—	—	135.80	3124.69		—	15,159.79	18420.28
	Cost per acre,		—	—	.453	.261		—	1.56	.838
	Ribes per acre,		—	—	5.5	56.9		—	35.5	46.7
	Acreage erad.,		194,313	218,137	7,245	108,683		27,253	89,874	645,525
	Wild Ribes erad.,		1,856,266	2,807,150	74,039	996,376		33,330	1,306,498	7,073,659
	Cult. Ribes erad.,		10,359	3192	83	8072		3140	4302	29,146
	Total cost	Individuals,	7118.72	1858.16	3214.83	3296.50		191.50	14097.84	29777.55
		Towns,	8754.38	36367.51	10.87	—		241.50	—	45374.26
		State,	1383.57	9541.27	645.25	11,998.28		1135.79	33,018.30	57722.46
Govt.		1539.42	—	372.50	—		1445.00	—	3356.92	
Total,		18,796.09	47,766.94	4,243.45	15,294.78		3013.79	47116.14	136,231.19	
Cost per acre,		.097	.219	.586	.141		.111	.524	.211	
Ribes per acre,		9.6	12.9	10.2	9.2		1.2	14.5	10.9	
Ribes impensation	No. persons paid,									
	No. bushes,									
	Amount paid,									
Est. acreage White Pine protected	Merch.,									
	Reprod.,									
	Total,									
Acres nonpine land eliminated,										

No wild Ribes eradication work done during 1930.

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SPECIAL CONTROL WORK

DISTRICTS, (States)		Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	1	—	1	1	—	4	—	7
	Acreage examined for wild Ribes,	126	—	50	47	—	3914	—	4137
	Wild Ribes erad.,	106,114	—	90	77	—	2265	—	103,546
	Cult Ribes erad.,	0	—	—	80	—	102	—	182
	Total cost	Individuals,	324.45	—	—	—	204.32	—	528.77
		Towns,	—	—	—	—	—	—	—
		State,	146.00	—	92.51	57.54	194.02	—	490.07
		Total,	470.45	—	92.51	57.54	398.34	—	1018.84
	Ribes compensation	No. persons paid,	—	—	—	—	3	—	3
		No. bushes,	—	—	—	—	12	—	12
		Amount paid,	—	—	—	—	7.50*	—	7.50
BLACK CURRANT ERADICATION	No. towns worked,	—	—	—	65	18	5	58	146
	No. towns completed,	—	—	—	63	15	0	49	127
	No. of patches,	—	—	—	1534	416	12	462	2424
	No. bushes erad.,	—	—	—	12190	39303.5	37	2455	18612
	No. bushes not erad.,	—	—	—	259	499	—	—	758
	Total cost	Individuals,	—	—	695.50	—	—	—	695.50
		Towns, Govt.,	—	—	—	—	350.27	—	350.27
		State,	—	—	5564.11	3126.27	588.33	2959.35	12,238.06
		Total,	—	—	6259.61	3126.27	938.60	2959.35	13,283.83
	Ribes compensation	No. persons paid,	—	—	21	—	—	—	21
		No. bushes,	—	—	1546	—	—	—	1546
		Amount paid,	—	—	656.85	—	—	—	656.85

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erاد. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when the two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

*Paid by nurseries.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State New England and New YorkPeriod Year 1930

REGULAR CONTROL WORK

DISTRICTS, (States)		Maine	N. H.	Vt.	Mass.	R. I.	Conn.	N. Y.	TOTALS FOR ALL STATE
AGENTS' NAMES,									
Period of service this year									
INDIVIDUAL COOPERATION	No. coop. who erad.								
	Cult. Ribes only,								
	Wild and cult. Ribes	33	5	51	106		21	50	266
	Acreage erad.,	810	2293	5707	14363		1648	5891	30712
	Wild Ribes erad.,	27570	14408	70012	19062		4428	49098	134578
	Cult. Ribes erad.,	216	1	25	—		437	91	770
	Total cost								
	Individuals,	361.52	267.34	1383.25	1138.50		388.00	1011.75	4550.36
	Towns, ^{Towns} Govt.,	217.43	—	28.50	—		92.50	—	245.93
	State,	—	66.84	142.95	785.36		351.67	972.98	1231.80
TOWN COOPERATION	Total,	578.95	334.18	1585.70	1923.86		832.17	1984.73	7239.59
	Cost per acre,	.715	.146	.278	.134		.505	.337	.236
	Ribes per acre,	34.0	6.3	3.5	1.3		2.7	8.3	4.4
	Town approp.								
	Number,	6*	8**	1*	—		—	—	15***
	Amount, expended	217.43	507.93	28.50	—		—	—	753.86
	Acreage erad.,	—	4773	—	—		—	—	4773
	Wild Ribes erad.,	—	23338	—	—		—	—	23338
	Cult. Ribes erad.,	—	4	—	—		—	—	4
	Total cost								
INDIVIDUALS' LANDS	Towns,	—	507.93	—	—		—	—	507.93
	State,	—	126.98	—	—		—	—	126.98
	Total,	—	634.91	—	—		—	—	634.91
	Cost per acre,	—	.133	—	—		—	—	.133
	Ribes per acre,	—	4.9	—	—		—	—	4.9
	Acreage erad.	—	—	—	13545		38	968	14551
	Wild Ribes erad.	—	—	—	5383		226	427	6036
	Cult. Ribes erad.	—	—	—	83		10	57	150
	Cost to State,	—	—	—	829.79		30.00	77.40	937.19
		—	—	—	—		16.00	—	16.00
PUBLIC LANDS	Total	—	—	—	—		46.00	—	46.00
	Cost per acre,	—	—	—	.061		1.21	.080	.106
	Ribes per acre,	—	—	—	0.4		5.9	0.4	0.4
	Acreage erad.,	—	—	170	200		656	1468	2494
	Wild Ribes erad.,	—	—	560	3550		6175	46166	56451
	Cult. Ribes erad.,	—	—	—	0		8	21	29
	Total cost,	—	—	74.56	71.90		224.50	952.50	1352.99
	Cost per acre,	—	—	.438	.360		125.00	—	125.00
	Ribes per acre,	—	—	3.3	17.8		349.50	.648	1447.99
		—	—	—	—		53.3	—	58.0
OTHER	Acreage erad.,	810	7066	5877	28108		2342	8327	52530
	Wild Ribes erad.,	27570	37746	70572	27995		10829	75691	220403
	Cult. Ribes erad.,	216	5	25	83		455	169	953
	Total cost								
	Individuals,	361.52	267.34	1383.25	1138.50		404.00	1011.75	4566.36
	Towns,	217.43	507.93	28.50	—		—	—	753.86
	State,	—	193.82	2175.1	1687.05		601.17	2002.41	4906.96
	Govt.	—	—	31.00	—		216.50	—	248.50
	Total,	578.95	969.09	1666.26	2825.55		1227.67	3014.16	10275.68
	Cost per acre,	.715	.137	.283	.101		.524	.362	.196
	Ribes per acre,	34.0	5.3	3.5	1.0		4.6	11.5	4.2
RIBES COMPENSATION	No. persons paid,								
	No. bushes,								
	Amount paid,								
EST. ACREAGE WHITE PINE PROTECTED	Merch.,								
	Reprod.,								
	Total,								
acres nonpine land eliminated,									

Also appropriated for initial control work.

(See note on reverse side)

** Includes 6 towns which also appropriated for initial control work.

8-7218

SPECIAL CONTROL WORK

DISTRICTS, (States)		Maine	N. H.	Vt.	Mass.	R. I.	Conn.	N. Y.	TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	1	—	—	2	—	4	5	17
	Acreage examined for wild Ribes,	100	—	—	150	—	11,077	9,42	20,369
	Wild Ribes erad.,	—	—	—	193	—	1274	53,314	54,78
	Cult Ribes erad.,	—	—	—	49	—	541	53	64
	Total cost	Individuals,	—	—	—	—	4,570.4	—	4,571.0
		Towns,	—	—	—	—	—	—	—
		State,	10.08	—	—	279.28	656.67	3161.82	4077.15
		Total,	10.08	—	—	1	9	—	10
	Ribes compensation	No. persons paid,	—	—	49	—	102	—	151
		No. bushes,	—	—	12.10	—	68.75*	—	80.85
		Amount paid,	—	—	—	—	—	—	—
BLACK CURRANT ERADICATION	No. towns worked,	—	—	—	—	—	—	—	—
	No. towns completed,	—	—	—	—	—	—	—	—
	No. of patches,	—	—	—	—	—	—	—	—
	No. bushes erad.,	—	—	—	—	—	—	—	—
	No. bushes not erad.,	—	—	—	—	—	—	—	—
	Total cost	Individuals,	—	—	—	—	—	—	—
		Towns,	—	—	—	—	—	—	—
		State,	—	—	—	—	—	—	—
		Total,	—	—	—	—	—	—	—
	Ribes compensation	No. persons paid,	—	—	—	—	—	—	—
		No. bushes,	—	—	—	—	—	—	—
		Amount paid,	—	—	—	—	—	—	—

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B. R. C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when the two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

*Paid by nurseries.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State New England and New YorkPeriod Year 1930

REGULAR CONTROL WORK

DISTRICTS, (States)			Maine	N. H.	Vt.	Mass.	R. I.	Conn.	N. Y.	TOTALS FOR STATE
AGENTS' NAMES,										
Period of service this year										
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,	41	—	32	64		—	—	137
		Wild and cult. Ribes	944	18	189	656		26	576	2409
	Acreage erad.,		15,533	6084	12,652	57,685		2544	58,890	153,388
	Wild Ribes erad.,		4,600,305	93586	92,406	272,017		6724	980,677	3,045,715
	Cult. Ribes erad.,		10,119	416	108	3471		695	3693	18,502
	Total cost	Individuals,	6728.24	2125.50	4598.08	4435.00	No wild Ribes eradication work done during 1930.	569.00	15,109.59	33,565.41
		Towns,	6035.51	—	39.37	—		—	—	6074.88
		State,	—	516.59	652.40	4691.58		545.00	15,189.18	21,594.75
		Govt.,	—	—	403.50	—		132.50	—	536.00
	Total,		12,763.75	2642.09	5693.35	9126.58		1246.50	30298.77	61771.04
Cost per acre,		.822	.434	.450	.158		.490	.514	.403	
Ribes per acre,		103.0	15.4	7.3	4.7		2.6	16.6	19.8	
TOWN COOPERATION	Town approp.	Number,	56	127	1	—		2	—	186
		Amount,	9100.00	37950.00	100.00	—		241.50	—	47391.50
	Acreage erad.,		5234	219,119	—	—		16774	—	241,127
	Wild Ribes erad.,		247252	2,751,310	—	—		29054	—	3,027,616
	Cult. Ribes erad.,		138	2781	—	—		880	—	3799
	Total cost	Towns,	2936.30	36,875.44	—	—		241.50	—	40053.24
		Govt.,	752.00	—	—	—		659.17	—	752.00
		State,	—	9218.50	—	—		385.80	—	9604.30
		Total,	3688.30	46,093.94	—	—		1286.47	—	51068.71
	Cost per acre, ^{10 Individuals}		.701	.210	—	—		.077	—	.212
Ribes per acre,		47.2	12.5	—	—		1.7	—	12.6	
INDIVIDUALS' LANDS	Acreage erad.		174,356	—	—	66956		9621	28,137	279,070
	Wild Ribes erad.		36,279	—	—	68624		2206	29,897	137,006
	Cult. Ribes erad.		316	—	—	3519		2012	755	6602
	Cost to State,		1383.57	—	—	579716		586.66	3719.71	11487.10
	Cost to Govt.,		1539.42	—	—	—		26.50	—	26.50
	Total Cost		2922.99	—	—	579716		613.16	3746.21	11513.60
	Cost per acre,		.017	—	—	.087		.141	.132	.049
	Ribes per acre,		0.7	—	—	1.0		0.2	1.1	0.5
	Acreage erad.,		—	—	470	12,150		656	11194	24,470
	Wild Ribes erad.,		—	—	2205	683,730		6175	391615	1,083,725
PUBLIC LANDS	Cult. Ribes erad.,		—	—	—	1165		8	23	1196
	Total cost,		—	—	210.36	3196.59		224.50	16,111.82	19,532.45
	Cost per acre,		—	—	.447	.263		.533	1.44	.812
	Ribes per acre,		—	—	4.7	56.3		94	35.0	44.3
	Acreage erad.,		195123	225203	13122	136,791		29,595	98221	698055
	Wild Ribes erad.,		1883836	2,844,296	94611	1,014,371		44159	1402189	7,294,062
	Cult. Ribes erad.,		10,573	3,197	108	8,155		3595	4471	30,099
	Total cost	Individuals,	7480.24	2125.50	4598.08	4435.00		595.50	15,109.59	34,343.91
		Towns,	8971.81	36,875.44	39.37	—		241.50	—	46,128.12
		State,	1383.57	9735.09	862.76	1385.76		1741.96	35020.71	62429.42
Govt.,		1539.42	—	413.50	—		1662.50	—	3605.42	
Total,		19,375.04	48,736.03	5903.71	18120.33		11341.46	50130.30	146,506.87	
Cost per acre,		.099	.216	.450	.132		.143	.510	.210	
Ribes per acre,		9.7	12.6	7.2	7.5		1.5	14.3	10.4	
Ribes compensation	No. persons paid,		0	1	2	23		—	28	54
	No. bushes,		0	12	19	588		—	302	921
	Amount paid,		0	2.00	9.50	256.85		—	136.15	404.50
st. acreage White Pine protected	Merch.,									
	Reprod.,									
	Total,									
Acres nonpine land eliminated,										

SPECIAL CONTROL WORK

DISTRICTS, (States)		Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	7 For STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	1	1	1	3	—	13	5	24
	Acreage examined for wild Ribes,	126	100	50	197	—	14,991	9047	24,500
	Wild Ribes erad.,	101,114	0	90	270	—	3544	53,314	158,330
	Cult Ribes erad.,	0	0	—	129	—	643	53	82
	Total cost	Individuals,	324.45	—	—	—	661.36	—	985.81
		Towns,	—	—	—	—	—	—	—
		State,	146.00	10.08	92.51	336.82	—	880.69	3101.82
		Total,	470.45	10.08	92.51	336.82	1,541.05	3101.82	5553.1
	Ribes compensation	No. persons paid,	—	—	1	—	12	—	1
		No. bushes,	—	—	49	—	114	—	16
		Amount paid,	—	—	12.10	—	76.25*	—	88.35
BLACK CURRANT ERADICATION	No. towns worked,	—	—	—	65	18	5	58	146
	No. towns completed,	—	—	—	63	15	0	49	12
	No. of patches,	—	—	—	1534	416	12	462	2420
	No. bushes erad.,	—	—	—	12,190	3430.150	37	245.5	1861
	No. bushes not erad.,	—	—	834 individuals	259	449	0	—	75
	Total cost	Individuals,	—	—	695.50	—	—	—	695.50
		Towns, Govt.,	—	—	—	—	350.27	—	350.27
		State,	—	—	5564.11	3126.27	588.33	2959.35	14,238.66
		Total,	—	—	6259.61	3126.27	938.60	2959.35	13,283.83
	Ribes compensation	No. persons paid,	—	—	21	—	—	—	—
		No. bushes,	—	—	1546	—	—	—	1546
		Amount paid,	—	—	656.85	—	—	—	656.85

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when the two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

*Paid by nurseries.

The funds spent on the "Ribes Eradication" project were for laborers, scouts and foremen. The costs of the state checkers in New Hampshire and the eradication assistants in New York are not included in this project.

Percent of Total State and Federal Funds, in Respective States,
Derived From Various Sources and Expended on the Project "Ribes
Eradication".

[illegible]

SUMMARY OF SPECIAL BLACK CURRANT ERADICATION PROJECTS
CONDUCTED IN EASTERN STATES DURING 1930.

State		Mass.	R.I.	Conn.	N. Y.	Sub-Total New England and New York	Michigan	Grand Total All States
Towns worked		65	18	5	58	146	136	282
Towns completed		63	15	0	49	127	134	261
Patches Ribes located		1534	416	12	462	2424	1630	4054
Ribes nigrum pulled		12190	3930	37	2455	18612	17778	36390
Other cult. bushes pulled		0	31	2973	0	3004	0	3004
Total Ribes pulled		12190	3961	3010	2455	21616	17778	39394
Bushes not eradicated		259	499	0	0	758	32	790
Cost	Individuals	695.50	0	0	0	695.50	0	695.50
	States	5564.11	3126.27	588.33	2959.35	12238.06	11476.97	23,715.03
	Govt.	0	0	350.27	0	350.27	0	350.27
	Total	6259.61	3126.27	938.60	2959.35	13283.83	11476.97	24,760.80

The data listed above are not included in the other Ribes eradication summaries. Also, the above table does not include the black currants which were destroyed in connection with the regular control work.

STATE COMPENSATION FOR CULTIVATED RIBES DESTROYED IN
NEW ENGLAND AND NEW YORK DURING 1930.

State		Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
Control Work	No.Cult.Ribes Destroyed	10,573	3,197	108	8155	-	3595	4524	30,152
	No.Bushes For Which Compensation Was Paid	-	12	19	588	-	-	302	921
	No.Persons Paid Compensation	-	1	2	23	-	-	28	54
	Amount Paid	-	2.00	9.50	256.85	-	-	136.15	404.50
Sanitation	No.Cult.Ribes Destroyed	-	-	-	129	-	643	-	772
	No.Bushes For Which Compensation Was Paid	-	-	-	49	-	114	-	163
	No.Persons Paid Compensation	-	-	-	1	-	12	-	13
	Amount Paid	-	-	-	12.10	-	76.25*	-	88.35
Eradication	No.Cult.Ribes Destroyed	-	-	-	12,190	3961	3010	2455	21,616
	No.Bushes For Which Compensation Was Paid	-	-	-	1,546	-	-	-	1,546
	No.Persons Paid Compensation	-	-	-	21	-	-	-	21
	Amount Paid	-	-	-	656.85	-	-	-	656.85
All Control Work	No.Cult.Ribes Destroyed	10,573	3,197	108	20,474	3961	7248	6979	52,540
	No.Bushes For Which Compensation Was Paid	-	12	19	2,183	-	114	302	2,630
	Percent total bushes paid for	-	0.37	17.6	10.7	-	1.6	4.3	5.0
	No.Persons Paid Compensation	-	1	2	45	-	12	28	88
	Amount Paid	-	2.00	9.50	925.80	-	76.25*	136.15	1,149.70
	Average cost per bush (Based on total No. destroyed)	-	.006	.088	.045	-	.011	.019	.022

*Paid by nurserymen

The amounts listed for compensation in Massachusetts represent claims made by owners for bushes eradicated during 1930. Twenty-nine of these claims were paid during 1930 involving a reimbursement by the State of \$343.80 for 844 bushes destroyed. The remainder of these 1930 claims will be settled during the spring of 1931.

PERCENT OF TIME SPENT ON EACH ACTIVITY BY AVERAGE PERMANENT
AGENT IN NEW ENGLAND AND NEW YORK DURING 1930.

State	Education		Personal Service		Supervision		Field Data		Scouting	Office (Routine)	Travel
	Office	Field	Office	Field	Office	Field	Office	Field			
Maine	0.3	6.1	0.1	12.0	1.4	19.4	0.5	4.8	5.1	23.6	26.7
N. H.	4.7	3.8	0.7	11.0	2.1	21.7	4.3	7.7	6.9	13.9	23.2
Vt.	1.9	8.3	0.2	32.1	0.3	12.6	1.7	2.1	6.5	13.0	21.3
Mass.	1.1	3.1	0.3	9.1	5.5	19.7	2.8	2.1	6.4	25.5	24.4
R. I.	18.2	10.7	20.3	8.5	10.1	12.1	1.0	0.2	1.7	3.1	14.1
Conn.	8.1	8.1	2.7	15.1	7.7	10.5	4.8	5.0	9.0	16.6	12.4
N. Y.	1.6	2.9	0.6	9.5	3.1	10.4	18.4	9.9	8.4	13.1	22.1
Totals	2.8	4.3	1.2	11.4	3.2	16.2	8.0	6.6	6.9	16.5	22.9

During 1930, the 33 permanent agents and 19 temporary agents worked a total of 89,174 hours; 16.6 percent of which was performed by the temporary agents. The average permanent agent worked 338.0 eight hour working days during the year.

In compiling the time data shown in the above table, the hours worked by Agents Clave and Doore, of Massachusetts, on special assignments were not included.

PERSONNEL EMPLOYED ON COOPERATIVE BLISTER RUST CONTROL WORK
IN NEW ENGLAND AND NEW YORK DURING 1930.
(Regardless of length of time employed)

State	Maine	N. H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
State Leaders	1	1	-	1	-	1	1	5
Permanent B.R.C. Agents	4	7	2	6	1	1	12	33
Temporary B.R.C. Agents	17	-	2	-	-	2	-	21
State Checkers and Eradication Assistants	-	2	-	-	-	-	3	5
Foremen	72	31	13	27	1	-	49	193
Scouts	*	26	1	-	-	14**	4	45
State Laborers	36	199	20	-	3	-	88	346
Owners' Laborers	1214	-	262	2007	-	64	147	3694
Totals	1344	266	300	2041	5	82	304	4342

*Included with "Temporary Blister Rust Control Agents".

**Scouts also acted as foremen.

During 1930, a total of 648 state and federal employees were engaged in cooperative blister rust control work in New England and New York. An additional 3694 individuals (pine or Ribes owners, or their employees) assisted in eradicating Ribes. In the federal control project at Acadia National Park three foremen and 33 laborers were employed, while in similar federal projects on the Shenandoah and Monongahela National Forests 2 foremen and 7 laborers were used. Thus 4390 persons actually participated in the field work. Also, many owners paid for the work on their lands, but took no personal part in pulling the bushes; and several hundred other persons permitted the destruction of their cultivated bushes without compensation. Estimated conservatively, 4700 people had more or less of an active part in the control work. The blister rust control agents also reported that 5179 individuals gave general support to the work; making a total of 9879 people who cooperated directly or indirectly in the control work.

TOTAL STATE AND FEDERAL EXPENDITURES, BY PROJECTS,
IN NEW ENGLAND AND NEW YORK DURING CALENDAR YEAR 1930.

State and Federal Cooperative Blister Rust Control Funds
Used For All Projects in New England and New York During Calendar Year 1930.

Source of Total State Funds Expended in Various Northeastern
States During Calendar Year 1930.

Source of Funds	State Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	All Other Coop. State Funds	Total State Funds
Maine	\$5,421.22	\$500.00	\$8,971.81	\$7,804.69	-	\$22,697.72
N. H.	16,259.00	-	36,875.44	2,125.50	-	55,259.94
Vt.	1,601.62	-	39.37	4,598.08	-	6,239.07
Mass.	19,335.46	865.26	-	5,130.50	\$1,946.65	27,277.87
R. I.	3,459.71	-	-	-	-	3,459.71
Conn.	5,454.64	-	241.50	1,333.11	199.50	7,228.75
N. Y.	67,607.10	-	-	15,109.59	-	82,716.69
Totals	\$119,138.75	\$1,365.26	\$46,128.12	\$36,101.47	\$2,146.15	\$204,879.75

Percentage of Total State Funds in Respective States
Derived From Various Sources

Source of Funds	State Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	All Other Coop. State Funds	Total State Funds
Maine	23.9	2.2	39.5	34.4	-	100.0
N. H.	29.4	-	66.7	3.9	-	100.0
Vt.	25.7	-	0.6	73.7	-	100.0
Mass.	70.9	3.2	-	18.8	7.1	100.0
R. I.	100.0	-	-	-	-	100.0
Conn.	75.5	-	3.3	18.4	2.8	100.0
N. Y.	81.7	-	-	18.3	-	100.0
Totals	58.2	0.7	22.5	17.6	1.0	100.0

Total State and Federal Expenditures in New England
and New York During Calendar Year 1930.

State	Total State Expenditures	Total Federal \$ For \$ Funds Expended	Total State and Federal Funds Expended	% Total State and Federal Ex- penditures Derived From Federal \$ For \$ Funds.
Maine	\$22,697.72	\$21,915.16	\$44,613.88	49.1
N. H.	55,259.94	30,545.00	85,804.94	35.6
Vt.	6,239.07	6,396.85	12,635.92	50.6
Mass.	27,277.87	22,339.21	49,617.08	45.0
R. I.	3,459.71	2,825.91	6,285.62	45.0
Conn.	7,228.75	8,512.55	15,741.30	54.1
N. Y.	82,716.69	32,730.31	115,447.00	28.4
Totals	\$204,879.75	\$ 125,265.99	\$330,145.74	37.9

Total State Expenditures, During The Calendar Year 1930,
For The Various Blister Rust Control Projects In The Respective Northeastern States.

State	Super- vision	BRC Agent Act.	Ribes Erad- ication	Erad. Ass'ts and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	\$1,592.57	\$2,183.93	\$17,835.62	-	-	-	\$970.45	-	\$115.15	\$22,697.72
N.H.	1,750.00	105.67	48,502.86	\$4,813.25	-	-	10.08	2.00	76.08	55,259.94
Vt.	608.24	-	5,500.21	-	-	-	92.51	9.50	28.61	6,239.07
Mass.	531.05	182.44	18,120.33	-	\$6,259.61	-	336.82	1705.60	142.02	27,277.87
R.I.	307.40	26.04	-	-	3,126.27	-	-	-	-	3,459.71
Conn.	873.33	391.16	2,578.96	-	588.33	\$626.50	1542.05	76.25	552.17	7,228.75
N.Y.	-	497.94	50,130.30	9,518.70	2,959.35	11107.14	3101.82	136.15	5265.29	82,716.69
Totals	\$5,662.59	\$3,387.18	\$142,668.28	\$14,331.95	12,933.56	\$11,733.64	6053.73	1929.50	\$6179.32	204,879.75

Percentage Of Total State Expenditures, In The Respective
Northeastern States, Paid For Each Project.

State	Supervision	BRC Agent Act.	Ribes Erad- ication	Erad. Ass'ts and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	7.0	9.6	78.6	-	-	-	4.3	-	0.5	100.0
N.H.	3.2	0.2	87.8	8.7	-	-	0.01	0.004	0.1	100.0
Vt.	9.7	-	88.1	-	-	-	1.5	0.2	0.5	100.0
Mass.	2.0	0.7	66.4	-	23.0	-	1.2	6.2	0.5	100.0
R.I.	8.9	0.7	-	-	90.4	-	-	-	-	100.0
Conn.	12.1	5.4	35.7	-	8.1	8.7	21.3	1.1	7.6	100.0
N.Y.	-	0.6	60.7	11.5	3.6	13.4	3.7	0.2	6.3	100.0
Totals	2.8	1.7	69.6	7.0	6.3	5.7	3.0	0.9	3.0	100.0

Total Federal Expenditures, During The Calendar Year 1930, For The Various
Blister Rust Control Projects In The Respective Northeastern States.

State	Super- vision	BRC Agent Act.	Ribes Erad- ication	Erad.Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	\$3,468.10	\$16,908.64	\$1,539.42	-	-	-	-	-	-	\$21,916.16
N.H.	3,737.66	26,807.34	-	-	-	-	-	-	-	30,545.00
Vt.	-	5,993.35	403.50	-	-	-	-	-	-	6,396.85
Mass.	3,748.26	18,547.73	-	-	-	-	-	-	43.22	22,339.21
R.I.	706.49	2,119.42	-	-	-	-	-	-	-	2,825.91
Conn.	1,060.40	5,439.38	1,662.50	-	350.27	-	-	-	-	8,512.55
N.Y.	-	29,853.38	-	2,876.93	-	-	-	-	-	32,730.31
Totals	12,720.91	105,669.24	3,605.42	2,876.93	\$ 350.27	-	-	-	\$43.22	\$ 125,265.99

Percentage Of Total Federal Expenditures, In Respective
Northeastern States, Paid For Each Project.

State	Supervision	BRC Agent Act.	Ribes Erad- ication	Erad. Assts. and Checkers	Black Currant Eradication	Misc.	Total
Maine	15.8	77.2	7.0	-	-	-	100.0
N.H.	12.2	87.8	-	-	-	-	100.0
Vt.	-	93.7	6.3	-	-	-	100.0
Mass.	16.8	83.0	-	-	-	0.2	100.0
R.I.	25.0	75.0	-	-	-	-	100.0
Conn.	12.5	63.9	19.5	-	4.1	-	100.0
N.Y.	-	91.2	-	8.8	-	-	100.0
Totals	10.1	84.4	2.9	2.3	0.3	0.03	100.0

Total State And Federal Expenditures, During the Calendar Year 1930, For The Various
Blister Rust Control Projects In The Respective Northeastern States.

State	Super- vision	ERC Agent Act.	Ribes Erad- ication	Erad. Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	\$5,060.67	\$19,092.57	19,375.04	-	-	-	\$ 970.45	-	\$ 115.15	\$44,613.88
N.H.	5,487.66	26,913.01	48,502.86	4,813.25	-	-	10.08	2.00	76.08	85,804.94
Vt.	608.24	5,993.35	5,903.71	-	-	-	92.51	9.50	28.61	12,635.92
Mass.	4,279.31	18,730.17	18,120.33	-	6,259.61	-	336.82	1,705.60	185.24	49,617.08
R.I.	1,013.89	2,145.46	-	-	3,126.27	-	-	-	-	6,285.62
Conn.	1,933.73	5,830.54	4,241.46	-	938.60	626.50	1,542.05	76.25	552.17	15,741.30
N.Y.	-	30,351.32	50,130.30	12,395.63	2,959.35	11,107.14	3,101.82	136.15	5,265.29	115,447.00
Totals	18,383.50	109,056.42	146,273.70	17,208.88	13,283.83	11,733.64	6,053.73	1,929.50	6,222.54	330,145.74

Percent Total State And Federal Expenditures, In The Respective Northeastern
States Paid For Each Project.

State	Super- vision	BPG Agent. Act.	Ribes Eradication	Erad. Assts. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Maine	11.3	42.8	43.4	-	-	-	2.2	-	0.3	100.0
N.H.	6.4	31.4	56.6	5.6	-	-	0.01	.002	0.1	100.0
Vt.	4.8	47.4	46.7	-	-	-	0.8	0.1	0.2	100.0
Mass.	8.6	37.8	36.5	-	12.6	-	0.7	3.4	0.4	100.0
R.I.	16.1	34.1	-	-	49.8	-	-	-	-	100.0
Conn.	12.3	37.0	27.0	-	6.0	4.0	9.7	0.5	3.5	100.0
N.Y.	-	26.3	43.4	10.7	2.6	9.6	2.7	0.1	4.6	100.0
Totals	5.6	33.0	44.3	5.2	4.0	3.6	1.8	0.6	1.9	100.0

EXPLANATION OF STATE AND FEDERAL EXPENDITURES FOR VARIOUS
BLISTER RUST CONTROL PROJECTS IN NEW ENGLAND AND NEW YORK
DURING THE CALENDAR YEAR 1930.

(Basis for project costs)

Supervision

State Expenditures

Maine and Massachusetts: Expenses for state leaders, including cost of new automobile for Frost in Maine.

New Hampshire: Upkeep and maintenance of state car (except gas and oil) for state leader, -state salary for permanent clerk and wages for any temporary assistants on blister rust control work at Concord office.

Connecticut: Expenses of Filley while on blister rust work - arbitrary part of salary for a permanent clerk at New Haven office. - (\$50 per month).

Rhode Island: An arbitrary amount to cover cost of supervisory activities by Lewis and Stene. - (\$300 per year).

New York: State leader McIntyre's salary and expenses are not charged against blister rust activities.

Federal Expenditures

Maine and Massachusetts: Yearly salaries of state leaders and expenses to annual conference - also in Massachusetts \$20 per month for clerical assistance at state office.

New Hampshire: Salary and expenses of state leader - \$35 per month for clerical assistance at state office.

Rhode Island and Connecticut: One-fourth of the salaries and all the expenses of the state leaders.

B. R. C. Agent Activities

State Expenditures

All States: Cost of educational material purchased by states for use of agents.

Maine: Cost of temporary scouts while engaged in agent activities.

New York: Expenses for Agent Nichols.

Federal Expenditures

All States: Salaries and expenses of all permanent blister rust control agents (except expenses for Nichols) - includes cost of 20 new federal cars purchased for agents.

Rhode Island and Connecticut: 3/4 of the salaries and all the expenses of the state leaders.

Ribes Eradication

State Expenditures

All States: Wages of owners' labor, state linemen, scouts and foremen employed in pulling Ribes.

New York and Connecticut: Board and lodging costs of men in state camps.

Federal Expenditures

Maine and Connecticut: Wages of temporary agents while employed scouting for Ribes.

Vermont: Wages of federal foremen who assisted individual cooperators.

Eradication Assistants and Checkers

State Expenditures

New Hampshire: Salaries and expenses of two permanent assistants during entire year.

New York: Salaries and expenses of temporary assistants, including camp supervisor.

Federal Expenditures

New York: Salaries of eradication assistants during the period April to June, 1930 - merely an emergency arrangement.

Black Currant Eradication

State Expenditures

Massachusetts, Rhode Island, Connecticut and New York: Wages and expenses (if any) paid to state men engaged in eradicating Ribes nigrum when such work is conducted as a special project.

Federal Expenditures

Connecticut: Wages and expenses paid to blister rust agents while engaged in locating and eradicating Ribes nigrum, when this work was performed as a special project.

Field Data

State Expenditures

Connecticut: Wages and expenses of state men while engaged in special study to determine effectiveness of control and need for re-eradication.

New York: Salaries and expenses of York, Snell, Littlefield and their assistants on investigational work.

Nursery Sanitation

State Expenditures

Vermont, New Hampshire and New York: Cost of Ribes eradication work at state nurseries.

Massachusetts and Connecticut: Cost of Ribes eradication work at commercial nurseries.

Maine: Cost of Ribes eradication at Brown Company nursery and a \$500 allotment for general nursery inspection in Maine.

Ribes Compensation

State Expenditures

Massachusetts, New York, Vermont and New Hampshire: Cost to states for

cultivated Ribes compensation. The Massachusetts compensation was for bushes destroyed in 1929; also includes compensation for a few bushes eradicated in 1930. In this state, compensation claims are not usually settled until the spring following the eradication of such bushes.

Connecticut: Cost of compensation paid by cooperating nurserymen in connection with nursery sanitation work.

Miscellaneous

State Expenditures

New York: Cost of training foremen and scouts, lost time due to rain, when not chargeable to any particular job, automobile maintenance, office supplies and other materials.

Other States: Cost of miscellaneous items not directly chargeable to any of the other blister rust control projects.

SUMMARY OF COOPERATIVE RIBES ERADICATION WORK CONDUCTED IN
PENNSYLVANIA AND LAKE STATES DURING 1930.

(Initial and Re-Eradication Work - Regular Control Projects
and Nursery Sanitation)

State		Pennsylvania	Michigan	Minnesota	Wisconsin	Totals
No. individual cooperators		-	42	35	3	80
No. cooperating towns		-	1	-	-	1
Acreage initial eradication		11,745	6,518	1,188	491	19,942
Acreage re-eradication		886	60	278	-	1,224
Total acreage eradicated		12,631	6,578	1,466	491	21,166
Wild Ribes pulled		664,016	373,016	79,877	164,485	1,281,394
Cult. Ribes pulled		863	440	13	-	1,316
Cost	State	\$9,139.11	\$2,953.64	\$169.46	\$183.62	\$12,445.83
	Individuals	-	2,170.70	333.05	40.00	2,543.75
	Town	-	37.60	-	-	37.60
	Govt.	-	-	354.43	745.48	1,099.91
	Total	\$9,139.11	\$5,161.94	\$856.94	\$969.10	\$16,127.09
Cost per acre		.723	.785	.584	1.97	.762
Ribes per acre		52.6	56.7	54.5	335.0	60.5

In addition to the above, a total of 17,778 black currants were eradicated at a total cost of \$11,476.97 in connection with the special campaign to eliminate this species from the white pine region in Michigan.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State Pennsylvania and Lake StatesPeriod 1930

REGULAR CONTROL WORK

DISTRICTS, States		Penna.	Mich.	Minn.	Wisc.				TOTALS FOR ALL STATES
AGENTS' NAMES,									
Period of service this year									
INDIVIDUAL COOPERATION	No. coop. who erad.		23	1	-				24
	Cult. Ribes only,	-	19	28	3				50
	Wild and cult. Ribes	-	4918	936	62				5916
	Acreage erad.,	-	319753	37750	12059				369562
	Wild Ribes erad.,	-	282	11	-				293
	Cult. Ribes erad.,	-	2170.70	189.76	40.00				2400.46
	Total cost	-	-	199.19	-				199.19
	Govt.	-	2019.89	52.33	-				2072.22
	State,	-	4190.59	441.28	40.00				4671.87
	Total,	-	.852	.471	.645				.790
TOWN COOPERATION	Cost per acre,	-	65.0	40.3	194.5				62.5
	Ribes per acre,	-	1	-	-				1
	Town approp.	-	200.00	-	-				200.00
	Amount,	-	1500	-	-				1500
	Acreage erad.,	-	8027	-	-				8027
	Wild Ribes erad.,	-	154	-	-				154
	Cult. Ribes erad.,	-	37.60	-	-				37.60
	Total cost	-	154.17	-	-				154.17
	Govt.	-	191.77	-	-				191.77
	State,	-	.128	-	-				.128
STATE WORK ON INDIVIDUALS' LANDS	Ribes per acre,	-	5.4	-	-				5.4
	Acreage erad.	-	-	-	-				-
	Wild Ribes erad.	-	-	-	-				-
	Cult. Ribes erad.	-	-	-	-				-
	Cost to State,	-	-	-	-				-
		-	-	-	-				-
	Cost per acre,	-	-	-	-				-
	Ribes per acre,	-	-	-	-				-
	Acreage erad.,	11745	-	132	429				12306
	Wild Ribes erad.,	656768	-	1918	152426				811112
PUBLIC LANDS	Cult. Ribes erad.,	863	-	2	-				865
	Total cost,	8631.48	-	54.88	183.62	State			8869.98 State
	Govt.			37.32	745.48	Govt.			782.80 Govt.
	Cost per acre,	.735	-	.698	2.17				.784
	Ribes per acre,	55.9	-	14.5	355.3				65.9
	Acreage erad.,	11745	6418	1068	491				19722
	Wild Ribes erad.,	656768	327780	39668	164485				1,188701
	Cult. Ribes erad.,	863	436	13	-				1312
	Total cost	-	2170.70	189.76	40.00				2400.46
	Govt.	-	37.60	-	-				37.60
GRAND TOTALS	State,	8631.48	2174.06	107.21	183.62				11096.37
	Govt.	-	-	236.51	745.48				981.99
	Total,	8631.48	4382.36	533.48	969.10				14516.42
	Cost per acre,	.735	.683	.499	1.97				.735
	Ribes per acre,	55.9	51.1	37.1	335.0				60.3
	Ribes Compensation	No. persons paid,	-	-	-				-
	No. bushes,	-	-	-	-				-
	Amount paid,	-	-	-	-				-
	Est. acreage White Pine protected	Merch.,							
	Reprod.,								
	Total,								
No. acres nonpine land eliminated,									

SPECIAL CONTROL WORK

DISTRICTS, States		Penna.	Mich.	Minn.	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	-	1	2	-				3
	Acreage examined for wild Ribes,	-	100	120	-				220
	Wild Ribes erad.,	-	42996	31861	-				74857
	Cult Ribes erad.,	-	4	-	-				4
	Total cost	Individuals,	-	106.99	-				106.99
		Towns, Govt.,	-	50.15	-				50.15
		State,	-	706.33	13.00	-			719.33
		Total,	-	706.33	170.14	-			876.47
	Ribes compensation	No. persons paid,	-	-	-	-	-	-	-
		No. bushes,	-	-	-	-	-	-	-
		Amount paid,	-	-	-	-	-	-	-
BLACK CURRANT ERADICATION	No. towns worked,	-	136	-	-				136
	No. towns completed,	-	134	-	-				134
	No. of patches,	-	1630	-	-				1630
	No. bushes erad.,	-	17778	-	-				17778
	No. bushes not erad.,	-	32	-	-				32
	Total cost	Individuals,	-	-	-	-	-	-	-
		Towns,	-	-	-	-	-	-	-
		State,	-	11476.97	-	-	-	-	11476.97
		Total,	-	11476.97	-	-	-	-	11476.97
	Ribes compensation	No. persons paid,	-	4	-	-	-	-	4
		No. bushes,	-	239	-	-	-	-	239
		Amount paid,	-	75.05	-	-	-	-	75.05

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State Pennsylvania and Lake StatesPeriod 1930

REGULAR CONTROL WORK

DISTRICTS: States			Penna.	Mich.	Minn.	Wisc.					TOTALS FOR All STATE
AGENTS' NAMES,											
Period of service this year											
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,			-						-
		Wild and cult. Ribes			4						4
	Acreage erad.,				125						125
	Wild Ribes erad.,				4550						4550
	Cult. Ribes erad.,				0						0
	Total cost	Individuals,			36.30						36.30
		Towns, Govt.			47.62						47.62
		State,			17.85						17.85
		Total,			101.77						101.77
	Cost per acre,				.814						.814
Ribes per acre,				36.4						36.4	
TOWN COOPERATION	Town approp.	Number,			-						-
		Amount,			-						-
	Acreage erad.,				-						-
	Wild Ribes erad.,				-						-
	Cult. Ribes erad.,				-						-
	Total cost	Towns,			-						-
		State,			-						-
		Total,			-						-
	Cost per acre,				-						-
	Ribes per acre,				-						-
STATE WORK ON INDIVIDUALS' LANDS	Acreage erad.				-						-
	Wild Ribes erad.				-						-
	Cult. Ribes erad.				-						-
	Cost to State,				-						-
	Cost per acre,				-						-
	Ribes per acre,				-						-
	Acreage erad.,				153						153
	Wild Ribes erad.,				3798						3798
	Cult. Ribes erad.,				0						0
	Total cost,				20.15 Federal 37.40 State						20.15 Govt. 37.40 State
PUBLIC LANDS	Acreage erad.,				153						153
	Wild Ribes erad.,				3798						3798
	Cult. Ribes erad.,				0						0
	Total cost,				20.15 Federal 37.40 State						20.15 Govt. 37.40 State
	Cost per acre,				.337						.337
	Ribes per acre,				24.8						24.8
	Acreage erad.,				278						278
	Wild Ribes erad.,				8348						8348
	Cult. Ribes erad.,				0						0
	Total cost	Individuals,			36.30						36.30
Towns,				0						0	
State,				49.25						49.25	
Govt.				67.77						67.77	
Total,				153.32						153.32	
Cost per acre,				.551						.551	
Ribes per acre,				30.0						30.0	
Ribes Compensation	No. persons paid,				-					-	
	No. bushes,				-					-	
	Amount paid,				-					-	
Est. acreage White Pine protected	Merch.,										
	Reprod.,										
	Total,										
No. acres nonpine land eliminated,											

SPECIAL CONTROL WORK

DISTRICTS, States		Penna.	Mich.	Minn.	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	3	1*						4*
	Acreage examined for wild Ribes,	886	60						946
	Wild Ribes erad.,	7248	2240						9488
	Cult Ribes erad.,	-	-						-
	Total cost	Individuals,	-	-					-
		Towns,	-	-					-
		State,	507.63	73.25					580.88
		Total,	507.63	73.25					580.88
	Ribes compensation	No. persons paid,	-	-					-
		No. bushes,	-	-					-
		Amount paid,	-	-					-
BLACK CURRANT ERADICATION	No. towns worked,								
	No. towns completed,								
	No. of patches,								
	No. bushes erad.,								
	No. bushes not erad.,								
	Total cost	Individuals,							
		Towns,							
		State,							
		Total,							
	Ribes compensation	No. persons paid,							
		No. bushes,							
		Amount paid,							

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

*Initial eradication work also conducted around the nursery.

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY

ANNUAL STATISTICAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK

State Pennsylvania and Lake StatesPeriod 1930

✓ REGULAR CONTROL WORK

DISTRICTS		State	Penna.	Mich.	Minn.	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,										
Period of service this year										
INDIVIDUAL COOPERATION	No. coop. who erad.	Cult. Ribes only,	-	23	1	-				24
		Wild and cult. Ribes	-	19	32	3				54
	Acreage erad.,		-	4918	1060	62				6041
	Wild Ribes erad.,		-	319753	42300	12,059				374112
	Cult. Ribes erad.,		-	282	11	-				293
	Total cost	Individuals,	-	2170.70	226.06	40.00				2436.76
		Towns, Govt.	-	-	246.81	-				246.81
		State,	-	2019.89	70.13	-				2090.07
		Total,	-	4190.59	543.05	40.00				4773.64
	Cost per acre,		-	.852	.512	.645				.790
TOWN COOPERATION	Ribes per acre,		-	65.0	39.9	194.5				61.9
	Town approp.	Number,	-	1	-	-				1
		Amount,	-	200.00	-	-				200.00
	Acreage erad.,		-	1500	-	-				1500
	Wild Ribes erad.,		-	8027	-	-				8027
	Cult. Ribes erad.,		-	154	-	-				154
	Total cost	Towns,	-	37.60	-	-				37.60
		State,	-	154.17	-	-				154.17
		Total,	-	191.77	-	-				191.77
	Cost per acre,		-	.128	-	-				.128
STATE WORK ON INDIVIDUALS' LANDS	Ribes per acre,		-	5.4	-	-				5.4
	Acreage erad.		-	-	-	-				-
	Wild Ribes erad.		-	-	-	-				-
	Cult. Ribes erad.		-	-	-	-				-
	Cost to State,		-	-	-	-				-
			-	-	-	-				-
	Cost per acre,		-	-	-	-				-
	Ribes per acre,		-	-	-	-				-
	Acreage erad.,		11745	-	285	429				12459
	Wild Ribes erad.,		656768	-	5716	152426				814910
PUBLIC LANDS	Cult. Ribes erad.,		863	-	2	-				865
	Total cost,		8631.48	-	86.28 57.47	183.62 745.48	State Govt.			8961.38 802.95
	Cost per acre,		.735	-	.504	2.17				.779
	Ribes per acre,		55.9	-	20.0	355.3				65.4
	Acreage erad.,		11745	6418	1346	491				20000
	Wild Ribes erad.,		656768	327780	48016	161485				1,197049
	Cult. Ribes erad.,		863	436	13	-				1312
	Total cost	Individuals,	-	2170.70	226.06	40.00				2436.76
		Towns,	-	37.60	-	-				37.60
		State,	8631.48	2174.06	156.46	183.62				11145.62
		Govt.	-	-	304.28	745.48				1049.76
GRAND TOTALS	Total,		8631.48	4382.36	686.80	969.10				14669.74
	Cost per acre,		.735	.683	.510	1.97				.733
	Ribes per acre,		55.9	51.1	35.7	335.0				59.8
	Ribes Compensation	No. persons paid,	-	-	-	-				-
		No. bushes,	-	-	-	-				-
		Amount paid,	-	-	-	-				-
	Est. acreage White Pine protected	Merch.,								
		Reprod.,								
		Total,								
	No. acres nonpine land eliminated,									

SPECIAL CONTROL WORK

DISTRICTS: States		Penna.	Mich.	Maine	Wisc.				TOTALS FOR STATE
AGENTS' NAMES,									
NURSERY SANITATION	No. nurseries worked,	3	1	2	-				6
	Acreage examined for wild Ribes,	886	160	120	-				1166
	Wild Ribes erad.,	7248	45236	31861	-				84345
	Cult Ribes erad.,	-	4	-	-				4
	Total cost	Individuals,	-	106.99	-				106.99
		Towns, Govt.,	-	50.15	-				50.15
		State,	507.63	779.58*	13.00				1300.21
		Total,	507.63	779.58*	170.14				1457.35
	Ribes compensation	No. persons paid,	-	-	-				-
		No. bushes,	-	-	-				-
		Amount paid,	-	-	-				-
BLACK CURRANT ERADICATION	No. towns worked,	-	136	-	-				136
	No. towns completed,	-	134	-	-				134
	No. of patches,	-	1630	-	-				1630
	No. bushes erad.,	-	17778	-	-				17778
	No. bushes not erad.,	-	32	-	-				32
	Total cost	Individuals,	-	-	-				-
		Towns,	-	-	-				-
		State,	-	11476.97	-				11476.97
		Total,	-	11476.97	-				11476.97
	Ribes compensation	No. persons paid,	-	4	-				4
		No. bushes,	-	239	-				239
		Amount paid,	-	75.05	-				75.05

PERSONNEL EMPLOYED ON RIBES ERADICATION WORK

CLASSES		Owners' labor	STATE LABOR					TOTAL
			Crew men	Foremen	Scouts	Erad. ass'ts	Total	
No. Men Used	Regular control work,							
	Nursery sanitation,							
	Black currant erad.,							
	Total,							

STATE AND FEDERAL EXPENDITURES FOR ALL BLISTER RUST CONTROL PROJECTS DURING CALENDAR YEAR

PROJECTS		Supervision	B.R.C. Agent Act.	Ribes eradication	Erad. ass'ts and checkers	Black currant erad.	Field data	Nursery sanitation	Ribes compensation	TOTALS
SALARIES or WAGES	State,*									
	Federal,									
	Total,									
EXPENSES	State,*									
	Federal,									
	Total,									
GRAND TOTAL										

NOTE.—In figuring cost of "REGULAR CONTROL WORK," include expenditures for the following three items: (1) the actual total amount expended by individuals, towns, and State on wages and any subsistence expenses for laborers, foremen, and scouts; (2) the value of owners' labor figured at the prevailing wage rate paid to farm labor, usually 40 cents per hour; (3) expenditures for transportation of men actually engaged in eradicating Ribes and for equipment such as picks and trail paper.

Under heading "SPECIAL CONTROL WORK," list only data for nursery sanitation and black currant eradication when these two activities were performed as special projects. If these special projects were not conducted under the direction of the district blister rust control agent, designate accordingly.

*Includes combined expenditures of individuals, towns, and State.

*Includes \$583.33 spent from state nursery funds.

Total State Expenditures, By Projects, In Lake States, Pennsylvania and New Jersey
During Calendar Year 1930.

State	Super- vision	BRC Agent Activities	Ribes Eradi- cation	Eradi. Assists. and Checkers	Black Current Eradi.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Total
Mich.	\$1,672.07	\$2,975.38	\$4,382.36	-	\$10,173.38	\$3,008.63	\$797.47	\$75.05	\$1,951.14	\$25,035.48
Minn.	965.83	630.42	382.52	-	-	99.11	719.99	-	-	2,797.87
N. J.	406.30	1,218.89	-	-	-	-	-	-	-	1,625.19
Penn.	197.19	856.35	8,631.48	643.90	-	426.75	507.63	-	80.34	11,343.64
Wis.	210.47	349.12	223.62	-	-	-	-	-	39.41	822.62
Totals	\$3,451.86	\$6,030.16	\$13,619.98	\$643.90	\$10,173.38	\$3,534.49	\$2,025.09	\$75.05	\$2,070.89	\$41,624.80

-59-
Percent of Total State Expenditures, In Respective Lake States, Pennsylvania and New Jersey
Spent For Each Project

State	Super- vision	BRC Agent Activities	Ribes Eradi- cation	Eradi. Assists. and Checkers	Black Current Eradi.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Total
Mich.	6.7	11.9	17.5	-	40.6	12.0	3.2	0.3	7.8	100.0
Minn.	34.5	22.5	13.7	-	-	3.6	25.7	-	-	100.0
N. J.	25.0	75.0	-	-	-	-	-	-	-	100.0
Penn.	1.7	7.5	76.1	5.7	-	3.8	4.5	-	0.7	100.0
Wis.	25.6	42.4	27.2	-	-	-	-	-	4.8	100.0
Totals	8.3	14.5	32.7	1.5	24.4	8.5	4.9	0.2	5.0	100.0

Total Federal Expenditures, By Projects, in Lake States, Pennsylvania and New Jersey
During Calendar Year 1930.

State	Super- vision	ERC Agent Activities	Ribes Erad- ication	Erad.Assists. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Total
Mich.	\$823.18	\$4378.52	-	-	\$1303.59	\$1549.02	-	-	\$206.96	\$8261.27
Minn.	430.52	2183.82	\$304.28	-	-	63.00	\$50.15	-	-	3031.77
N. J.	300.00	900.00	-	-	-	-	-	-	-	1200.00
Penn.	485.83	4803.96	-	-	-	-	-	-	-	5289.79
Wisc.	442.60	2462.27	745.48*	-	-	-	-	-	-	3650.35
Totals	\$2482.13	\$14728.57	\$1049.76	-	\$1303.59	\$1612.02	\$50.15	-	\$206.96	\$21433.18

*Expended by Indian Service for control work on Menomonee Reservation.

-70-

Percent of Total Federal Expenditures in Respective Lake States, Pennsylvania and New Jersey
Spent For Each Project.

State	Super- vision	ERC Agent Activities	Ribes Erad- ication	Erad.Assists. and Checkers	Black Currant Erad.	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Total
Mich.	10.0	53.0	-	-	15.8	18.7	-	-	2.5	100.0
Minn.	14.2	72.0	10.0	-	-	2.1	1.7	-	-	100.0
N. J.	25.0	75.0	-	-	-	-	-	-	-	100.0
Penn.	9.2	90.8	-	-	-	-	-	-	-	100.0
Wisc.	12.1	67.5	20.4	-	-	-	-	-	-	100.0
Totals	11.6	68.7	4.9	-	6.1	7.5	0.2	-	1.0	100.0

Total State and Federal Expenditures, By Projects, in Lake States, Pennsylvania and New Jersey
During Calendar Year 1930.

State	Super vision	BRC Agent Activities	Ribes Eradic- ation	Erad. Assists. and Checkers	Black Currant Eradic- ation	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Mich.	\$2495.25	\$7353.90	\$4382.36	-	\$11,476.97	\$4557.65	\$797.47	\$75.05	\$2158.10	\$32,296.75
Minn.	1396.35	2814.24	686.80	-	-	162.11	770.14	-	-	5,829.64
N. J.	706.30	2118.89	-	-	-	-	-	-	-	2,825.19
Penn.	683.02	5660.31	8631.48	\$643.90	-	426.75	507.63	-	80.34	16,633.43
Misc.	653.07	2811.39	969.10	-	-	-	-	-	39.41	4,472.97
Totals	\$5933.99	\$20758.73	\$14669.74	\$643.90	\$11,476.97	\$5146.51	\$2075.24	\$75.05	\$2277.85	\$63,057.98

Percent of Total State and Federal Expenditures, in Respective Lake States, Pennsylvania and
New Jersey, Spent For Each Project.

State	Super vision	BRC Agent Activities	Ribes Eradic- ation	Erad. Assists. and Checkers	Black Currant Eradic- ation	Field Data	Nursery Sani- tation	Ribes Compen- sation	Misc.	Totals
Mich.	7.5	22.1	13.1	-	34.5	13.7	2.4	0.2	6.5	100.0
Minn.	23.9	48.3	11.8	-	-	2.8	13.2	-	-	100.0
N. J.	25.0	75.0	-	-	-	-	-	-	-	100.0
Penn.	4.1	34.0	51.9	3.9	-	2.6	7.0	-	0.5	100.0
Misc.	14.6	62.8	21.7	-	-	-	-	-	0.3	100.0
Totals	9.4	32.9	23.2	1.0	18.2	8.2	3.3	0.1	3.7	100.0

EXPLANATION OF STATE AND FEDERAL EXPENDITURES FOR VARIOUS
BLISTER RUST CONTROL PROJECTS IN LAKE STATES, PENNSYLVANIA
AND NEW JERSEY DURING THE CALENDAR YEAR 1930.

(Basis for project costs)

Supervision

State Expenditures

Michigan: One-third state leader's expenses - salary of permanent stenographer at Lansing Office - Mandenberg's time while on blister rust work.

Minnesota: One-quarter of state leader's expenses - \$25 per month for part time services of stenographer at St. Paul office - an arbitrary amount to cover cost of supervisory activities of Conzert and Oppel (\$600).

New Jersey: One-quarter of state leader's expenses and \$20 per month for one-quarter of his state salary.

Pennsylvania: One-quarter of state leader's expenses and miscellaneous expenses at Brockway office.

Wisconsin: One-quarter of state leader's expenses.

Federal Expenditures

Minnesota, Pennsylvania and Wisconsin: One-fourth of salary and any special federal expenses paid state leaders.

Michigan: One-third of salary and any special federal expenses of state leader.

New Jersey: \$25 per month for one-fourth of state leader's federal salary.

B. R. C. Agent Activities

State Expenditures

All States: Cost of educational material purchased by states for use of agents.

Michigan: Expenses of blister rust control agents and two-thirds of state leader's expenses.

Minnesota: Three-quarters of state leader's expenses and cost of temporary state men doing agent work.

New Jersey: Three-quarters of state leader's expenses and \$60 per month for three-fourths of his state salary.

Pennsylvania: Salaries and expenses of temporary state men doing agent work, and three-fourths of state leader's expenses.

Wisconsin: Three-quarters of state leader's expenses.

Federal Expenditures:

Minnesota, Pennsylvania and Wisconsin: Three-fourths of salaries and any special federal expenses of state leaders. Hodgkins' salary and expenses while working with state men in Pennsylvania - salary and expenses of Ninman while assisting on cooperative work in Wisconsin.

Michigan: Two-thirds of salary and any special federal expenses of state leader.

New Jersey: \$75 per month for three-fourths of state leader's federal salary.

Ribes Eradication

State Expenditures

All States: Wages of owners' labor, state linemen, scouts and foremen employed in pulling Ribes.

Federal Expenditures

Minnesota: Cost of state leader's time while engaged in eradication work.

Wisconsin: Expenditure by Indian Service for work on Menominee Reservation.

Eradication Assistants and Checkers

State Expenditures

Pennsylvania: Salary and expenses of assistant to state leader while engaged in checking eradication work.

Black Currant Eradication

State Expenditures

Michigan: Wages and expenses of men while on special black currant eradication project.

Federal Expenditures

Michigan: Cost of federal agents while engaged on special black currant eradication project.

Field Data

State Expenditures

Michigan: Wages and expenses of state men and expenses of federal agents while on scouting work.

Minnesota: Expenses of state leader and salary and expenses of temporary state agent while on this project.

Pennsylvania: Salary and expenses of state men on this project.

Federal Expenditures

Michigan: Salaries of Michigan agents and federal men assigned to scout work in that state.

Minnesota: Salary and expenses of state leader while on this project.

Nursery Sanitation

State Expenditures

Michigan: Cost of Ribes eradication work at state nursery and small additional amount for scouting around other nurseries.

Minnesota: Cost of Ribes eradication work around two commercial nurseries - part of salary and expenses of state nursery inspector.

Pennsylvania: Cost of Ribes eradication work around state nurseries.

Federal Expenditures

Minnesota: Part cost of Ribes eradication work around two commercial nurseries.

Ribes Compensation

State Expenditures

Michigan: Cost to state for cultivated Ribes compensation.

Miscellaneous

State Expenditures

Michigan: Cost of training eradication personnel - cost of miscellaneous supplies and materials not chargeable to any of the other blister rust control projects.

Pennsylvania and Wisconsin: Cost of miscellaneous items not directly chargeable to any other project.

Federal Expenditures

Michigan: Cost of training men paid from federal funds.

SUMMARY OF FEDERAL RIBES ERADICATION PROJECTS ON PUBLIC LANDS
IN EASTERN STATES DURING 1930.

Location	Acreage Cleared Of Ribes	Ribes Pulled		Total Cost	Per Acre	
		Wild	Cult.		Cost	Ribes
Acadia National Park	2,762	239,941	-	\$4,667.42	\$1.69	86.9
Monongahela National Forest	352	393	1	47.07	.134	1.1
Shenandoah National Forest		1,643	-	71.15		
Totals		241,977	1	\$4,785.64		

All of this work was conducted as strictly Federal projects; the Office of Blister Rust Control furnishing the supervision in each instance. Detailed reports have already been submitted for each of these projects.

SUMMARY OF ALL RIBES ERADICATION WORK IN EASTERN
STATES DURING 1930.

(Initial and Re-Eradication - Regular Control
Projects and Nursery Sanitation)

	Cooperative Work New England And New York	In Cooperative Work In Pennsylvania And Lake States	Federal Control Projects	Total All Eradication Work
No. Individual Cooperators				
Cult. Ribes Erad. Only	971	24	-	995
Wild And Cult. Ribes Erad.	2,435	56	-	2,491
No. Cooperating Towns	186	1	-	187
Acreage initial eradication	649,662	19,942		
Acreage re-eradication	72,899	1,224		
Total acreage eradicated	722,561	21,166		
Wild Ribes pulled	7,452,394	1,281,394	241,977	8,975,765
Cult. Ribes pulled	30,924	1,316	1	32,241
Cost				
States	66,997.34	12,445.83	-	79,443 .17
Individuals	35,329.72	2,543.75	-	37,873 .47
Towns	46,128.12	37.60	-	46,165 .72
Govt.	3,605.42	1,099.91	4,785.64	9,490 .97
Total	152,060.60	16,127.09	4,785.64	172,973.33
Cost per acre	.210	.762		
Ribes per acre	10.3	60.5		

SUMMARY, BY STATES, OF COOPERATIVE
BLISTER RUST CONTROL ACTIVITIES IN THE NORTHEASTERN
AND LAKE STATES DURING THE PERIOD 1918 TO 1930, INCLUSIVE.

SUMMARY, BY STATES, OF COOPERATIVE ELISTER RUST CONTROL ACTIVITIES IN THE NORTHEASTERN AND LAKE STATES DURING THE PERIOD 1918 - 1930, INCLUSIVE.

MAINE

Policy: Prior to 1931, the state cooperated with towns and individuals in Ribes eradication, by furnishing scouts to systematically examine town control areas to determine the Ribes concentrations, which were eradicated by individual owners, working under the supervision of town foremen paid from town funds. The Ribes concentrations covered only about 15 percent of the control areas, consequently the Ribes on 85 percent of the total acreage were eradicated by the scouts. However, the bushes pulled by these men represented less than one percent of the total number destroyed. A new state policy will be inaugurated in 1931 whereby the eradication work will be performed on the township basis, as in New Hampshire, the state paying one-third of the total costs.

Acreage of Pine: Pure, 589,280 acres; mixed, 1,043,173 acres; pine restocking in types other than pine, 1,549,589 acres; total, 3,182,042 acres.

<u>Cooperation:</u>		No.	Individual	No. Town	Town Money
Period	Individuals	Expenditures	Appropriations	Appropriated	
1918-1921	30	\$1,163.07	0	0	
1922-1930	10,997	77,696.37	402	\$68,873.52	
Totals	11,027	\$78,859.44	402	\$68,873.52	

<u>Ribes Eradication*:</u>			<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>
(Initial and Re- eradication)	<u>Period</u>	<u>Acreage</u>	<u>Wild</u>	<u>Cult</u>	<u>Cost</u>	<u>Per Acre</u>
	1918-1921	180,630	658,729	1,579	\$ 19,708.14	\$.109
	1922-1930	2,400,343	16,594,841	107,805	177,893.26	.074
	Totals	2,580,973	17,253,570	109,384	\$197,601.40	\$.077

In Addition On Acadia National Park	1929-1930	3,910	314,314	-	\$5,902.82	\$1.51
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*Eradication costs based on the value of owners' labor figured at 40 cents per hour and on the actual cost of paid laborers, town foremen and scouts. The cost of the latter is only for time actually spent in scouting for Ribes.

Cultivated Ribes Compensation - 1922-1930: None.

Ribes Re-eradication: The above acreage includes 5,392 acres reworked since 1922.

Public Forests: There are no public forests in Maine. However in 1930, a state park area was acquired on Mt. Katahdin. Control work was begun during 1929 and continued during 1930 on the Acadia National Park at Mt. Desert Island, Maine.

According to present plans, based on a pre-eradication survey, it will take at least one year to complete the necessary initial eradication work.

Plantations: Protected in conjunction with general control work - compared with other states, there are very few white pine plantations in Maine.

Nursery Sanitation: Only a few pine growing nurseries in the state - Initial control work has been completed around all of them except the state nursery at Crono, which will be worked during 1931. During 1929, the Western Maine Forest Nursery at Fryeburg was granted a pine shipping permit under Federal Quarantine #63. This nursery is one of the three in the country which have complied with the requirements of the quarantine and have received permits to ship white pine interstate. In 1930, the environs of the Cupsuptic Nursery at Oquossoc, Maine, owned by the Brown Company, were eradicated of Ribes for a distance of 1500 feet. A total of 101,114 wild Ribes were pulled from 126 acres, or 802 bushes per acre. Some pine infection has been found in this nursery, and apparently diseased stock has unintentionally been shipped to Rhode Island.

Ribes nigrum: The control policy in Maine requires the destruction of all cultivated Ribes in white pine areas. Therefore, black currants are eradicated in connection with the regular town control projects. It will, however, be necessary to make special arrangements for eliminating Ribes nigrum outside the agent districts. Many Ribes americanum are cultivated in Maine, but apparently few Ribes nigrum.

Blister rust surveys: During 1920 and 1921, the white pine types were mapped in several towns in Maine - Prizcoe had maps and a report prepared of this work - maps used as a basis for control work and as an estimate of pine values. Strip line infection survey made by Frost in 1920 - the pines on rod wide strips totalling 38.5 miles in length were examined - a total of 7046 pines were inspected, and 6.3% were found infected - 11 plots, totalling 2.7 acres, were laid out adjacent to the strips, 14.4% of the 970 pines in these plots were diseased - data used for educational purposes. Epidemiology survey made during 1926, by agents and Hirt, of white pine and other forest types, Ribes and infection conditions - maps and summaries prepared at Boston Office.

Infection: General in the commercial range of white pine - based on town units in this region, the percentage of diseased pine ranges from 1 to 10 percent of the total amount of pine - most of the infection has originated since 1918, and is especially abundant in southwestern Maine, notably in Lincoln County - the oldest infection is located at Kittery Point, apparently originated in 1897 from cultivated black currants imported from England. A particularly heavy wave of infection occurred in unprotected areas during 1925.

Investigations: Demonstration control areas at Kittery Point and Brunswick - very little data on these studies available. Infection and effectiveness of control study made by Posey at Kittery Point - report published.

Many pine damage plots laid out by agents - used for demonstration purposes - infection data summarized and used by agents in educational work. - Effectiveness of control studies made by agents during 1929. These data were summarized at the Boston Office, and copies of the summaries sent to the state leader and Washington Office.

Future Work: Complete initial control work on 399,018 acres in agents' districts (basis: estimates by agents of acreage still needing initial eradication in each town) - and on 411,871 acres outside of agents' districts, mostly mixed pine, east of Penobscot River. Re-examination of initial control areas which have not been re-eradicated of Ribes, 2,570,189 acres; estimate 50% or 1,285,099 acres will need intensive reworking.

NEW HAMPSHIRE

Policy: The state cooperates primarily with towns, paying 20 percent of the total costs of the town projects. The control work is performed by state crews (paid from state and town funds) working systematically definite town blocks irrespective of property lines. Some cooperation is also obtained from individual owners. The state assists such persons by paying 20 percent of the costs of control work. Because many of the backward towns had not cooperated, the state legislature passed a law in 1929 requiring towns to appropriate for blister rust control, amounts not to exceed \$400 in any one year, provided the state forester and the governor and his council demanded such action. Compulsory measures were applied for the first time in 40 towns during 1930.

Acreage of pine: Pure, 811,751 acres; mixed, 574,805 acres; pine restocking in types other than pine, 304,968 acres; total 1,691,524 acres. In addition, there is a large acreage of mixed growth containing pine stocking of less than 20 percent.

<u>Cooperation:</u>	<u>Period</u>	<u>No. Individuals</u>	<u>Individual Expenditures</u>	<u>No. Town Appropriations</u>	<u>Town Money Appropriated</u>
	1918-1921	162	\$10,317.48	162	\$25,860.00
	1929-1930	494	36,244.93	765	275,390.00
	<u>Totals</u>	<u>656</u>	<u>\$46,562.41</u>	<u>927</u>	<u>\$301,250.00</u>

Ribes Eradication:

(Initial and Re-eradication)	<u>Period</u>	<u>Acreage</u>	<u>Ribes Pulled</u>		<u>Total Cost</u>	<u>Cost Per Acre</u>
			<u>Wild</u>	<u>Cult.</u>		
	1918-1921	571,625	6,335,690	61,517	116,739.79	\$.204
	1922-1930	2,177,187	25,613,992	77,091	394,433.27	.181
	<u>Totals</u>	<u>2,748,812</u>	<u>31,949,682</u>	<u>138,608</u>	<u>\$511,173.06*</u>	<u>\$.186</u>

In Addition on
White Mt. National
Forest

1924-1930	6,384	142,556	-	\$2,271.24	\$.356
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*Eradication costs based on total cost of owners' labor, state labor, scouts, and foremen.

Cultivated Ribes Compensation:- 1922-1930: Number persons paid compensation - 23; total number bushes paid for - 570; total amount paid in reimbursement - \$129.47.

Ribes Re-Eradication: The above acreage includes 341,904 acres reworked since 1922. This acreage represents 61.6 percent of all re-eradication work that has been performed in New England and New York.

Public Forests: Initial control work completed in all pine areas of state and national forests. A thorough inspection during 1928 of control areas on the National Forest showed re-eradication work would not be needed at least for a few years.

Plantations: Protection secured in conjunction with town control projects. During 1927, the agents made special inspection of 89 plantations, containing 750,000 trees, in order to determine their condition. A special card record was kept for each plantation, and where possible, the owners were interviewed. In conjunction with this work, 61 native stands, containing 5020 acres, were located upon which the owners are practicing forestry.

Nursery sanitation: The state nursery and the two commercial pine growing nurseries in the state have conducted initial and re-eradication work around their properties for several years. In spite of this, considerable pine infection was found in the Keene Nursery during 1928. As a result, this nursery destroyed 30,000 white pine transplants and also arranged for reinspection of the nursery and environs. A single pine infection was also discovered in the state nursery during 1928. This nursery and its environs were thoroughly re-examined for Ribes in 1929 and 1930.

Ribes nigrum: The town control policy in New Hampshire systematically eliminates cultivated Ribes from all white pine regions; therefore, no special campaign is needed to eradicate black currants. Most of the initial eradication work has been completed in the section of the state where the greater portion of black currants existed.

Blister rust surveys: Because of the general distribution of white pine, a special mapping of such areas is not necessary, especially as the recent epidemiology study gave town information on white pine and other forest types, Ribes, and infection conditions. During 1919, detailed forest type maps were made of the towns of Dover and Kensington - This work developed effective methods of mapping and estimating, and the data were used also for control work and educational purposes. Three years ago, the State Forestry Department completed a forest resource survey, which showed 50 percent of the wood products in New Hampshire were made of white pine. The annual cut of this species varies from 55 to 65 percent of the total lumber cut in the state. Strip line infection surveys were made in 1920 - the pines on rod wide strips, totaling 54.5 miles in length, were examined - a total of 9919 pines were inspected, and 13 percent were found infected - 213 plots, totaling 49.1 acres, were laid out adjacent to the strips; 51.5 percent of the 7014 pines in these plots were diseased. During 1928, a survey was made in 69 backward towns to locate and map the minimum control area, which should be cleared of Ribes to protect the pine. Partly as a result of the facts obtained by this survey, over 30 percent of these towns appropriated for control work in 1929.

Infection: General in commercial pine range, especially severe in northern Connecticut River Valley region - based on town units, the percent of diseased pine ranges from 1 to 30 percent of the total amount of pine. Also, see strip line data given under "Blister Rust Surveys". Two especially heavy infection areas were located in unprotected tracts during the spring of 1929; one in the vicinity of Moose Mountain in the town of Hanover, and the other along the upper waters of Underwood Brook situated in the northeastern part of Acworth. Both of these infection areas cover a large territory. An acre plot, examined in the Acworth area, showed that 94 out of every 100 trees were fatally infected with the disease. In many instances, the pines had been so seriously infected that every branch contained several cankers.

Investigations: Demonstration control areas established at Conway and Wolfeboro - latter area re-checked during 1927 - a report of this study is being prepared by Endersbee. Detailed infection studies made by Endersbee at Hooksett, Hampstead, Sunapee, and Littleton - (reports submitted); by Posey, at Deerfield and Lisbon - (no report); by Richards, at Temple - (preliminary report only). Many damage and demonstration plots laid out by agents - used for educational purposes. Ribes regrowth study made by Newman at Newmarket - (no report submitted). During 1929, effectiveness of control studies were made by the agents in 34 New Hampshire towns. These data were summarized at the Boston Office, and copies of the summaries sent to the state leader and Washington Office to be used for educational purposes.

Office: Maps and records show control work by years - however, most of the early detailed records, by blocks, have been lost or were kept in such poor shape as to be of little value - data since 1922 O.K.

Future Work: Complete initial Ribes eradication 380,531 acres, (basis: estimates by agents of total acreage to be worked in each town - including both pine areas and protection strips) - Re-examination of initial control areas that have not already been reworked, 2,065,004 acres; estimate 50 percent or 1,032,502 acres will need to be reworked by crew methods.

VERMONT

Policy: State cooperation with individual owners, who pay all eradication costs, except excess labor charges for state foremen. In few instances, town money has been obtained to pay the excess labor costs.

Acreage of pine: Pure 103,376 acres; mixed, 238,562 acres; pine restocking in types other than pine, 284,253 acres; total, 626,191 acres.

<u>Cooperation:</u>	No.	Individual	No. Town	Town Money
<u>Period</u>	<u>Individuals</u>	<u>Expenditures</u>	<u>Appropriations</u>	<u>Appropriated</u>
1918-1921	61	\$4,021.11	0	0
1922-1930	1838	59,529.78	11	805.90
Totals	1899	\$63,550.89	11	\$805.90

<u>Ribes Eradication:</u>			<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>
<u>(Initial and Re-eradication)</u>	<u>Period</u>	<u>Acreage</u>	<u>Wild</u>	<u>Cult.</u>	<u>Cost</u>	<u>Per Acre</u>
	1918-1921	17,978	272,143	282	\$14,252.51	\$.793
	1922-1930	176,306	1,883,703	5753	70,852.26	.402
	Totals	194,284	2,155,846	6035	\$85,104.77	\$.438

(Eradication costs based on the value of owners' labor and on the actual cost of hired laborers and foremen - No scouts employed)

Cultivated Ribes Compensation, 1922-1930: Number persons paid compensation - 121; total number bushes paid for - 1522; total amount paid in reimbursement - \$738.66.

Ribes Re-eradication: The above acreage includes 22,949 acres re-worked since 1922.

State Forests: Initial control work completed on all the principle pine areas of the state forests, except new additions.

Plantations: State office has fairly complete record of plantations. The agents are supplied with an annual list showing distribution of white pine stock from state nurseries. The plantings in the agents' districts are worked in conjunction with the regular control program. Special arrangements will be needed to protect plantations outside the agent districts.

Nursery sanitation: Exclusive of state nursery, which has been protected from blister rust, there are no nurseries growing white pine where sanitation measures are necessary. This nursery has been given a permit to ship white pines interstate under regulations specified in federal quarantine 63.

Ribes Nigrum: A systematic black currant survey was begun in the agents' districts during the fall of 1928 and continued during 1929. Such work has been completed in 20 towns and partially finished in 3 additional towns. A total of 224 *Ribes nigrum* were located and 183 were destroyed.

Blister rust surveys: (1) White pine areas of state - data suitably recorded on maps for each agent's use. (2) Strip line infection survey made in 1920. The pines on rod wide strips totalling 28 miles in length were examined - a total of 4002 pines were inspected and 3.1% found diseased. (3) Production, value, and use of white pine and other woods - data summarized for entire state, and published in bulletin form. (4) Epidemiology survey of white pine and other forest types, *Ribes* and infection conditions made during 1926. Maps and summaries prepared at Boston Office.

Infection: General throughout the commercial pine range of state, being especially severe in northern Connecticut River Valley region - based on town units, the percent of diseased pine ranges from 1-30 percent of the total amount of pine - also, see strip line data under "Surveys". Considerable new infection occurred in unprotected areas during 1928.

Investigations: Demonstration control areas at Thetford and Fairlee, Vermont - preliminary reports submitted - no follow up work done. *Ribes* regrowth studies made by Merrill, and reported at 1927 annual conference. Blister rust damage study of merchantable pine made by Filler at Waterford, Vermont - report being prepared. During 1927, six quarter acre infection plots laid out by agents. Also, in cooperation with the extension forester, six permanent demonstration plots were established to show white pine thinning and protection. Seven additional demonstration plots in six towns were laid out in 1928. During the fall of 1928 and spring of 1929, pine infection studies were made by the agents in 14 Vermont towns to determine the effectiveness of the control work. These data were summarized at the Boston Office and copies of the summaries sent to the Forestry Commissioner and to the Washington Office to be used for educational purposes.

Office Records: Maps and card records showing pine location, control areas, plantations, and infection, are in good shape.

Future Work: Complete initial *Ribes* eradication 128,192 acres - (basis: estimates by agents of acreage remaining to be done in each town, including both pine areas and protection strips - in areas outside the agents' districts, acreage remaining to be worked based on pine acreage (pure and mixed) plus an additional one-fourth acreage for protection strips minus acreage initially cleared of *Ribes*).

Re-examination of initial control areas which have not been re-eradicated of Ribes, 148,386 acres; estimate 50 percent, or 74,193 acres will need intensive working.

MASSACHUSETTS

Policy: Cooperation with individuals - state scouts used to examine town areas and to denote sections requiring intensive control work, which will be done by pine owners, under the direction of state foremen.

Acreage of pine: Pure, 450,799 acres; mixed, 337,031 acres; pine re-stocking in types other than pine, 270,539 acres; total, 1,058,369 acres.

<u>Cooperation:</u>	<u>No.</u>	<u>Individual</u>	<u>No. Town</u>	<u>Town Money</u>
<u>Period</u>	<u>Individuals</u>	<u>Expenditures</u>	<u>Appropriations</u>	<u>Appropriated</u>
1918-1921	81	\$5,886.22	4	\$1,700.00
1922-1930	14,851	68,718.78	0	0
<u>Totals</u>	<u>14,932</u>	<u>\$74,605.00</u>	<u>4</u>	<u>\$1,700.00</u>

<u>Ribes Eradication:</u>	<u>Period</u>	<u>Acreage</u>	<u>Ribes Pulled</u>	<u>Total</u>	<u>Cost</u>
<u>(Initial and Re-</u>			<u>Wild</u>	<u>Cost</u>	<u>Per Acre</u>
<u>Tradication)</u>			<u>Cult.</u>		
	1918-1921	81,877	2,414,873	10,345	44,674.90
	1922-1930	1,739,104	10,509,934	218,736	225,942.90
	<u>Totals</u>	<u>1,820,981</u>	<u>12,924,807</u>	<u>229,081</u>	<u>\$270,617.80</u>

(Eradication costs based on total cost of owners' labor, state scouts and foremen)

Cultivated Ribes Compensation, 1922-1930: Number persons paid compensation - 347; total number bushes paid for - 22,539; total amount paid in reimbursement - \$8,106.25.

Ribes-Re-eradication: The above acreage includes 104,066 acres reworked since 1922. This re-eradicated area represents 18.8% of all such work performed in New England and New York since 1922.

State forests: Initial control work has been completed on practically all pine areas in the state forests. During 1929, control work was conducted in cooperation with the Department of Conservation on 25 lots in 11 towns. In addition, five other state departments cooperated in eradicating Ribes on state lands in 11 towns. This 1929 work resulted in 16,857 acres of state land being cleared of 85,431 wild Ribes and 3,081 cultivated bushes, at a cost of \$3,261.17. Similar state land work in cooperation with three other state departments was conducted in 14 towns during 1930; a total of 12,150 acres being cleared of 683,730 wild Ribes and 1165 cultivated bushes at a cost of \$3,196.59.

Plantations: Protection secured in conjunction with the general control program.

Nursery sanitation: All nurseries growing white pine for public sale were cleared of Ribes prior to 1925. During 1925 and 1926, a special survey was conducted to eradicate all Ribes nigrum from within one mile of all pine growing nurseries. In this work, a total of 217 Ribes nigrum, 319 flowering currants, and 20 other cultivated Ribes were destroyed. These bushes were owned by 155 persons, but claims were made by only ten persons for loss of 106 bushes. During 1927 and 1928, the protection zone for wild and cultivated Ribes, except nigrum, was increased from 900 to 1500 feet around nine of the main commercial nurseries, and a total of 4,942 wild Ribes and 3,345 cultivated bushes were destroyed. Fifty persons claimed \$647.15 for loss of 1400 cultivated Ribes. Spot pine infections were found in six nurseries during 1928, but no new outbreaks were located.

The policy of the Division of Plant Pest Control to establish Ribes free conditions in the environs of only the more important white pine producing nurseries was continued during 1929. It is believed that the expenditures necessary for the establishment of Ribes free zones around any additional nurseries would not be justified, because of the relatively limited number of white pines produced. Nursery sanitation measures were applied during 1929 to four commercial nurseries owning areas in eight towns. A total of 720 wild Ribes, 104 black currants, and 1,131 other cultivated bushes were destroyed. Only 11 claims for reimbursement were received for the loss of 106 cultivated Ribes. Three of the state nurseries of the Department of Conservation were also examined, but no Ribes were located. The spring inspection of the white pines in the Massachusetts nurseries, made by representatives of the Division of Plant Pest Control, resulted in the disease being found in three nurseries. Only six infected trees were located.

During 1930, sanitation work was conducted around three commercial nurseries owning areas in four towns; 270 wild Ribes and 129 cultivated bushes being pulled from the 197 acres examined. One claim for reimbursement was received for the loss of 49 cultivated Ribes. In the annual spring inspection of the white pines in the larger nurseries a total of nine infected trees were found in three nurseries. Future sanitation work will be limited to re-examination of the environs of those nurseries which have already been initially protected.

Ribes nigrum: Several thousand cultivated black currants were destroyed in Massachusetts during 1917, in connection with a state cultivated Ribes census. In 1927, a special regulation was made effective prohibiting the possession of Ribes nigrum in the state, and a systematic campaign was begun to eliminate such bushes. Up to 1931, black currant eradication work had been completed in 150 Massachusetts towns and partially finished in 46 additional ones. A total of 26,599 Ribes nigrum were destroyed in these towns since 1927. During 1930, black currant eradication was conducted as a special project and a separate record kept of this work. This special project was

carried on in 65 towns, the work being completed in all but two of them. An inspection was made of 110,000 properties. This work resulted in the location and destruction of 1,534 plantings, containing a total of 12,190 black currants. In Agent Brockway's district, all efforts were concentrated on this one project. All black currant work in the state prior to 1930 was conducted in conjunction with regular control activities.

Blister rust surveys: Cultivated Ribes census throughout entire state in 1917 - data compiled and a summary report prepared - used as a basis for inspections and eradication of Ribes nigrum. During 1920, strip line infection survey was made - the pines on a rod wide strip totaling 4.4 miles in length were examined - a total of 871 pines were inspected and 5.7% were found infected - 9 plots, totaling 3 acres, were laid out adjacent to the strips; 27% of the 637 pines in these plots were diseased - epidemiology survey by agents during 1926 of white pine and other types, Ribes and infection - maps and summaries prepared at Boston Office.

Infection: General, but spotted and light, especially in eastern and central parts of the state. In these sections, most of the infections are old ones caused by Ribes nigrum; eradication of most of these bushes in 1917 had a decided effect in checking spread of disease, as wild Ribes are localized in these sections. Also, see strip line data under "Blister Rust Surveys". During 1929, pine infection was reported for the first time in seven additional towns. Scouting by Hodgkins and the Massachusetts agents in 1930 and during the spring of 1931 resulted in diseased pine being found in 41 other Massachusetts towns. To date, pine infection is known to be present in 328 Massachusetts towns out of a total of 355 in the state. The non-infected towns are either in the metropolitan district of Boston or contain little or no white pine.

Investigations: Demonstration control areas established at Barre and Pembroke - no check study available. Pine infection study made by Root at Pembroke, also infection studies made by Pickler at Sandisfield, and by Hodgkins at Swanzey - reports submitted. Cutting out of cankers studies made by Martin at Ipswich, and by Hodgkins at Pembroke - published report by Martin. Damage plots laid out by agents in western Massachusetts - used for demonstration and educational purposes. Sample forest type map made of Duxbury, used as basis for control work. Study on spread of disease from skunk currants started by Clave during 1927 - report presented at annual conference showed only limited spread from such Ribes. During 1928, Clave conducted experiment to determine effectiveness of sodium chlorate in killing skunk currants - preliminary report given at annual conference. This chemical eradication experiment was continued during 1929 and 1930. The plots sprayed during the previous years were checked and several new plots of skunk currants and other wild species were sprayed. (See

Massachusetts 1929 and 1930 annual reports for details of checks). Also, a few additional plot studies were made of blister rust damage.

Office: Records and maps for most part in good shape.

Future Work: Complete initial eradication, 40,000 acres (based on estimates by agents of acreage still remaining to be done in each town at end of 1930 eradication season - includes both acreages of pine and protection strips). Re-examination of initial control areas that have not been re-eradicated of Ribes, 1,612,849 acres; estimate 50 percent or 806,424 acres will need intensive reworking. Complete Ribes nigrum eradication throughout state - complete chemical eradication study - make additional studies to determine effectiveness of control - maintain Ribes free conditions in the environs of pine growing nurseries.

RHODE ISLAND

Policy: All control work performed by state scouts, as wild Ribes number less than one per acre and are very localized.

Acreage of pine: Pure, 13,779 acres; restocking of pine in types other than pine, 59,417 acres; total, 73,196 acres - also considerable acreage of potential pine land.

Cooperation: No cooperation solicited, except in 1918, 1923, and 1924, when eight individuals gave \$581.36 for conducting general control work in the state.

<u>Ribes eradication:</u>			<u>Ribes Pulled</u>	<u>Total</u>	<u>Cost</u>
<u>(Initial and Re-</u>	<u>Period</u>	<u>Acreage</u>	<u>(Wild & Cult.)</u>	<u>Cost</u>	<u>Per Acre</u>
<u>eradication)</u>					
	1918-1921	103,261	85,493	\$16,761.55	\$.162
	1922-1930	180,331	121,251	13,811.74	.077
	Totals	283,592	206,744	\$30,573.29	\$.108

(Eradication cost based on total cost of state scouts - No wild Ribes eradication work performed during 1929 and 1930.)

Cultivated Ribes destroyed: 1918-1921, 4251 bushes; 1922-1930, 7316 bushes; total for period 1918-1930, 12,067 bushes. (Does not include cultivated Ribes pulled in connection with black currant eradication project during 1929 and 1930.)

Compensation - 1922-1930: Number persons paid compensation - 7; total number bushes paid for - 94; total amount paid in reimbursement - \$35.85.

Ribes re-eradication: The above acreage includes 10,910 acres reworked since 1922.

State forests: The one state forest (Goddard Park) has been protected.

Plantations: All plantations in control areas have been protected. The outside plantings are in little danger, due to scarcity of wild Ribes. However, these areas should be inspected. The amount of re-forestation is gradually increasing in this state.

Nursery sanitation: Only a few ornamental pines are grown in the Rhode Island nurseries. Such nurseries and environs have been inspected by state men - no pine infection has ever been found in these nurseries. Only one nursery grows cultivated Ribes for sale.

Ribes nigrum: A state law prohibits the possession of such bushes in the state. A survey to locate Ribes nigrum was completed in two towns

in 1927. These bushes were eradicated in 1928. During 1929, all the control work was limited to the systematic eradication of *Ribes nigrum*. A total of 5703 *Ribes nigrum* and 906 other cultivated bushes were destroyed in 22 towns. This project was continued in 1930, when 3930 *Ribes nigrum* and 31 other cultivated *Ribes* were eradicated in 18 towns.

Blister rust surveys: A rough survey of white pine areas in state was made by Sheals in 1920. This information has been used for control and educational purposes. During 1926, a cartographical survey was completed of white pine and other types, *Ribes* and infection conditions - These data summarized at Boston Office. A survey of the production of white pine and other woods in the state during 1925 was made by Anderson. Report prepared and published in News Letter. During 1928, Hurford began a survey to map the location of white pine and other forest types, and to estimate their contents. Two townships (Coventry and West Greenwich) were completed during 1928. Due to pressure of other work, this project was limited in 1929 to the field mapping of forest areas in the townships of North Providence, Lincoln, and Cumberland. A few towns were partially mapped.

Pine infection: Few spots, mostly from cultivated black currants - many of the infections have been cut out.

Investigations: Study of *Ribes* regrowth and effectiveness of control made by Anderson, report prepared by Anderson and Fivaz.

Office: Records of control work in good shape.

Future Work: Complete initial protection of pine areas and potential pine land; estimate 250 acres need to be worked. Re-examination of all control areas (272,682 acres) and eradication of *Ribes* in all likely sites such as; swamps, stream courses, fence rows, walls, cellarholes and roadways. This check work in likely sites will take a four man crew at least two or three seasons - report on all control work in state. - complete survey of forest types and an estimate of their contents - completion of *Ribes nigrum* project - maintenance of *Ribes* free conditions in environs of pine growing nurseries.

CONNECTICUT

Policy: In Litchfield County, where pine and Ribes are more or less generally distributed, cooperation is conducted with individuals and towns, foremen and scouts being furnished by the state. Outside Litchfield County, Ribes are comparatively few and localized; consequently, the control work is limited to scouting performed by state men.

Acreage of pine: Pure, 73,426 acres; mixed, 124,345 acres; pine restocking in types other than pine, 47,873 acres; total, 245,644 acres.

<u>Cooperation:</u>	No.	Individual	No. Town	Town Money
Period	Individuals	Expenditures	Appropriations	Appropriated
1918-1921	0	0	0	0
1922-1930	465	9,339.94	17	7,942.88 *
Totals	465	\$9,339.94	17	\$7,942.88*

*Includes \$1,966.33 raised by individual subscription.

<u>Ribes Eradication:</u>			<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>
(Initial and Re- eradication)	Period	Acreage	Wild	Cult.	Cost	Per Acre
	1918-1921	13,470	125,263	8	\$ 6,962.11	\$.517
	1922-1930	251,007	1,628,811	21,441	58,519.11	.233
	Totals	264,477	1,754,074	21,449	\$65,481.22	\$.248

(Eradication costs based on total cost of owner's labor, state labor, scouts and foremen.)

Cultivated Ribes Compensation, 1922-1930: Number persons paid compensation - 16; total number bushes paid for - 175; total amount paid in reimbursement - \$103.50. No compensation was paid prior to 1929. These compensation figures include \$76.25 paid by individual cooperators (nurserymen) during 1930 to 12 owners of cultivated Ribes for the destruction of 114 bushes.

Ribes Re-Eradication: The above acreage includes 32,522 acres reworked since 1924.

State forests: The state forests contain very little pine - protection work has been conducted where necessary.

Plantations: The plantations in the northern portion of the state are being worked in connection with the protection of native pine. The scattered plantings in the remainder of the state outside the natural pine range are in comparatively little danger due to scarcity of wild Ribes. Many of these isolated plantings have been inspected, but very little follow up work has been done.

Nursery sanitation: During the fall of 1927, 158 owners of nurseries were interviewed regarding blister rust control. Sixteen owners, desiring to ship pine out of New England agreed to cooperate in maintaining official control areas around their nurseries. A preliminary Ribes survey of these areas showed 70 Ribes owners, possessing 1014 cultivated bushes, would permit the destruction of the plants without compensation; and that 27 owners, having 567 bushes, were unwilling to cooperate. The attitudes of 28 additional owners of 342 bushes were not determined. As a result of the survey, control areas were established around eleven nurseries, and during 1928, 3962 acres were cleared of 60 wild Ribes, 93 Ribes nigrum, and 333 other cultivated bushes.

Such sanitation work was continued during 1929 in the environs of eleven nurseries, 5960 acres being cleared of 1182 wild and 1814 cultivated Ribes at a total cost of \$832.32. All of this work, except that on 380 acres, was re-eradication. Only five nurseries intend to qualify under quarantine 63. Nine nurseries will continue to maintain the sanitation zones. During the fall of 1929, the state leader made a survey of nurseries, having or considering the sanitation zones, to ascertain their attitude towards state maintenance of these zones with the nurserymen contributing a substantial part of the cost. All were favorable to the plan and expressed their willingness to cooperate in amounts ranging from \$25 to \$100 annually. During 1928, pine infection was found in the Northeastern Forestry Company nursery, and in 1929 in two additional nurseries.

Sanitation work was conducted during 1930 around 13 nurseries including one owned by the state; a total of 3,544 wild Ribes and 643 cultivated bushes being eradicated from 14,991 acres at a cost of \$880.69 to the state and \$661.36 to the cooperating nurserymen. All but 3,914 acres of this work was re-eradication. During 1930 the application of two nurseries (A. N. Pierson, Inc. and H. J. Zack) were tentatively approved by the federal Quarantine and Control Administration and permission granted to plant white seed under sanitary conditions.

Ribes nigrum: In July 1929, the Connecticut Legislature passed a bill prohibiting the planting, selling or possession of Ribes nigrum in the state. A systematic campaign to eradicate black currants was inaugurated during 1930 in connection with a census of cultivated Ribes. Such work was completed in four towns and partially finished in one additional town; 37 Ribes nigrum and 2,973 other cultivated Ribes being destroyed at a total cost of \$938.60.

Blister rust surveys: During 1920 and 1921, all pine areas in the commercial pine range were mapped on U.S.G.S. sheets, and an estimate made of their contents - data used as a basis for control work and for educational purposes. Epidemiology survey during 1926 of white pine and other types, Ribes and infection conditions - data summarized at Boston Office.

Infection: General in northern Litchfield County - only spot infections, mostly old cankers, in remainder of state.

Investigations: Ribes regrowth and effectiveness of control study by Endersbee, report prepared - crew experiment by Riley, preliminary report submitted - Studies made by Clark and Riley during 1929 to determine effectiveness of control and need for re-eradication - data summarized. A similar pine infection study was made in the town of Salisbury during the winter of 1930-31. For details of this see special report by Riley.

Office: Records and maps in excellent shape.

Future Work: Complete initial eradication, 1,000 acres, (Basis: estimates by state leader and agent of acreage still needing initial control work in each town.) - Re-examination of initial control areas that have not been re-eradicated of Ribes, 199,433 acres; estimate 50% or 99,716 acres will need intensive reworking. Complete survey of Ribes nigrum and elimination of these bushes in state - Nursery sanitation measures applied to all nurseries growing white pine - complete inspection of all white pine plantations in state - additional studies to determine effectiveness of control work.

NEW YORK

Policy: Protection of white pine on state lands and on lands owned by individuals. State cooperates with such owners by furnishing, at state expense, foremen to supervise control work. In the future, control work on the state forest preserve will be restricted chiefly to pine areas of scenic importance; isolated pine areas of medium or old growth will not be protected.

Acreage of pine: Pure, 671,771 acres; mixed, 473,917 acres; pine restocking in types other than pine, 262,698 acres; total, 1,408,386 acres.
(Based on 1927 survey.)

<u>Cooperation:</u>	<u>Period</u>	<u>No. Individuals</u>	<u>Individual Expenditures</u>
	1918-1921	41	\$18,658.34
	1922-1930	4,367	134,460.15*
	<u>Totals</u>	<u>4,408</u>	<u>\$153,118.49*</u>

*Does not include \$3664.20 spent by individuals on unsupervised Ribes eradication work during 1922.

<u>Ribes Eradication:</u>			<u>Ribes Pulled</u>		<u>Total</u>	<u>Cost</u>
(Initial and Re- eradication)	<u>Period</u>	<u>Acreage</u>	<u>Wild</u>	<u>Cult.</u>	<u>Cost</u>	<u>Per Acre</u>
	1918-1921	68,062	4,511,845	13,736	\$170,343.75	\$2.50
	1922-1930	518,520	11,501,010	29,819	406,964.33	.785
	<u>Totals</u>	<u>586,582</u>	<u>16,012,855</u>	<u>43,555</u>	<u>\$577,308.08</u>	<u>\$.984</u>

(Eradication costs include total cost of owner's labor, state labor, foremen and scouts.)

Cultivated Ribes Compensation, 1922-1930: Number persons paid compensation - 625; total number bushes paid for - 3,435 ; total amount paid in reimbursement - \$1319.96.

Ribes Re-eradication: Since the inauguration of the present program, re-eradication work has been performed only during 1928, 1929 and 1930 when 37,055 acres were cleared of 444,266 wild Ribes and 1714 cultivated bushes at a total cost of \$17,694.45.

State forests: Practically all of the control work prior to 1922 was on state lands; however, since then the amount of work on private lands has greatly exceeded the state projects. Initial control work has been completed on most of state pine areas worth protecting, except on such new purchases as the Tongue Mountain tract.

Plantations: The New York State nurseries have distributed, up to and including 1930, 62,049,678 white pines for planting in the state.

Many of these plantings have been protected, especially in the agents' districts, but in other parts of the state no such control work has been done, except that by Agent Baker during 1929 in 5 counties in the northwestern part of the state. New York requires all prospective planters to sign an agreement, guaranteeing to eradicate all Ribes from pine planting sites. On November 1, 1930, there were 24,069,000 white pine seedlings and transplants in the five nurseries of the New York Conservation Department.

Nursery sanitation: During the past several years, sanitation measures have been applied to protect the pine areas in the state nurseries. The protection zones were for some time maintained at 900 feet. During 1928, this distance was increased to 1500 for all Ribes, except nigrum, which was eradicated within one mile of the pine areas. To date, Ribes nigrum have been eradicated from within one mile of each of the five state nurseries and the 900 foot Ribes free zones have been completely extended to 1500 feet. All of the sanitation work in 1929 and 1930 was confined to state nurseries.

In addition to the state nurseries, there are 300 commercial nurseries in New York. However, only a few of these grow an appreciable amount of white pine. During 1928, the first attempt was made to establish protection zones surrounding some of these nurseries, particularly in Wayne and Westchester counties. It soon became apparent that cultivated Ribes were extremely abundant in the vicinity of the various nurseries. As compensation had to be paid for such bushes destroyed, it was evident the work would have to be limited. Therefore, it was restricted to a general survey to determine and record Ribes conditions in the environs of the nurseries in these counties and to the eradication of Ribes nigrum in such situations. According to the revised state blister rust law, effective February 17, 1930, no compensation shall be paid by the state for any species of Ribes destroyed in connection with the establishment of Ribes free zones around commercial nurseries, but fair compensation for such bushes must be paid by the person owning or operating the protected nursery.

During 1930, a federal pine shipping permit was issued to the Jackson & Perkins Nursery of Newark, New York. This company may therefore ship white pines interstate according to the regulations of quarantine 63.

Ribes nigrum: The New York state law prohibits the possession of such bushes. A systematic survey to eradicate Ribes nigrum was started in 1928. This work was chiefly confined to control areas and to nursery growing sections, and resulted in 8825 black currants and 439 flowering currants being destroyed, not including bushes eradicated in connection with the regular control work. In Westchester County alone, 3313 Ribes nigrum were uprooted and the survey completed in all but six towns. During 1929, black currant eradication was conducted as a special project in 47 towns in 11 counties. A total of 4048 Ribes nigrum and 322 flowering currants were destroyed, exclusive of the black currants eradicated in connection with the regular control work. This special campaign to eliminate Ribes nigrum was continued during

1930 in 58 towns where 2455 black currants were destroyed at a total cost of \$2959.35. The revised blister rust law does not include flowering currants as one of the prohibited black currants.

Blister rust surveys: Strip line infection survey made by Brooks in 1920 - The pines on rod wide strips, totalling 28.4 miles in length, were examined; a total of 12,297 pines were inspected, and 5.1 percent found diseased; 16 plots, totalling 15.1 acres, were laid out adjacent to the strips. 17.5% of the 14,455 pines in these plots were diseased. In 1922, Fivaz made a similar strip study near Warrensburg of 12.1 miles in length and found 21% of the 8139 pines infected. During 1920 and 1921, Amadon made survey of white pine in parts of Essex and Warren Counties - the pine areas have been designated on U.S.G.S. maps, but no summary has been made of acreage or contents of the stands - maps used as basis for control work. During the period 1927 to 1929, McIntyre had rough maps made of the pine and hardwoods types in several counties for use in eradication work. Cartographical survey made by agents and Corliss, during 1926 and 1927, of white pine and other forest types, Ribes, and infection conditions - maps and summaries prepared at Boston Office.

Infection: General and abundant in commercial white pine range of the state, spot infections in other parts, caused principally by infected stock or Ribes nigrum. In generally infected region, on a basis of town units, the percent of diseased pine ranges from 1-30 percent of the total amount of pine. Also, see strip line data under "Surveys".

Investigations: Selective Ribes eradication experiment at North Hudson - not completed - no report. Effectiveness of control study made by Fivaz - preliminary report only. Blister rust damage studies by York and Snell - published in Journal of Forestry. Ribes ecology studies by Littlefield and Fivaz - preliminary report given at annual conference 1927. Damage study of pine plantation at Schroon River - preliminary report prepared by Ford. During 1928, the pines were examined for infection in 30 plots (each approximately one acre in size) 15 of the plots being laid out in areas cleared of Ribes prior to 1925, and the other 15 in tracts not eradicated of such bushes in the same towns. The study showed that since the time of eradication, over 15 times as much infection has originated in the unprotected tracts, as in the protected areas. During 1929, nine additional pairs of comparable plots were examined by the agents and the data summarized at the Boston Office.

Office: Records and maps in good shape.

Future Work: Complete initial eradication work on state and individually owned lands - 378,922 acres in agents' districts (basis: estimates

made by agents of acreage still needing initial eradication work in each town, including both pine areas and protection strips). In addition, there are 132,301 acres (mostly plantations and mixed growth) outside of the agents' districts, which will require Ribes eradication. Re-examination of 512,472 acres that have not been re-eradicated of Ribes - estimate 50% or 256,236 acres require intensive reworking. Elimination of Ribes nigrum throughout the state - application of adequate sanitation measures surrounding all nurseries growing white pine - Inspection of pine plantations and application of control measures - Complete recheck of Amadon's pine survey in Warren and Essex Counties.

NEW JERSEY

Policy: Prior to 1929, all blister rust activities in this state were conducted by a few temporary men, employed during the summer months, on scout work to determine pine, Ribes and infection conditions. Since August 1929, a permanent agent has been employed on a part time basis. Due to the limited amount of native white pine, his activities are confined chiefly to nursery sanitation, black currant eradication, inspection and protection of plantations, scouting, and direction of control work where needed.

Acreage of white pine: From a forestry viewpoint, there is very little white pine in the state; however, it has been planted extensively as an ornamental, especially in the Red Bank and Morristown sections. In Passaic County, a light stocking (less than 20 percent) of native white pine is found in hardwood types in the Greenwood Lake section, on Bearfoot Mountain, and near West Milford. At the last place, there is almost a pure stand of white pine comprising several acres. Also, in Sussex County, a light stocking of white pine exists on Waywayonda Mountain (from Vernon north to the state line), Pochuck Mountain, Sparta Mountain, Kittating Mountain, and around Cranberry Lake. It is most abundant in the township of Montague. In Warren County, there is also a light stocking along the Delaware between Columbia and Manunka Chunk.

Cooperation and Ribes eradication: Many owners destroyed their Ribes nigrum; also there is an unwritten agreement between the New Jersey nurseries not to sell these bushes. Wild Ribes are known to exist in the northern part of the state, particularly on Waywayonda Mt. and near West Milford, where Ribes rotundifolium and americanum have been found. The location of the wild Ribes in relation to valuable pine areas is such that the destruction of these bushes does not appear urgent.

State forests: Six forests, comprising 18,954 acres, apparently contain little white pine of commercial importance.

Plantations: About 10,000 acres have been planted; however, the white pine survey shows only an estimated total of 194,840 planted white pines, exclusive of 21,388 reported in nurseries. The largest white pine plantings are located in Gloucester, Morris, Cumberland, Ocean, and Somerset Counties. Smaller white pine plantings are found in the Counties of Monmouth, Warren, Burlington and Sussex. There is one state nursery of about ten acres in size - no information as to sanitation measures. During 1929, an inspection was made of the sites and environs of the white pine plantings made from stock distributed during that year by the State Department of Conservation and Development. These locations were examined for wild and culti-

vated Ribes, and when Ribes and older pines were found nearby, these were inspected for infection. Owners, in each case, were advised regarding the disease and control methods. The plantations varied from 500 to 10,000 seedlings, and on 30 sites examined, 323 cultivated currants and gooseberries (mostly red currants) were located - none of these bushes were infected. Card and map records of this work were kept for future reference.

Nurseries: In New Jersey, there were 112 commercial nurseries which contained host plants of blister rust February 1, 1931. Some ornamental white pines were being grown in 97 of these nurseries and 22 were raising both host plants. At the time of the survey, there existed in these commercial nurseries 120,577 ornamental white pines and 13,769 cultivated Ribes. In addition, the state nursery contained 423,000 white pines. No information is available as to protective measures.

Ribes nigrum: Survey of black currants made during 1928 in Morris County, also in parts of Monmouth and Sussex; 102 plantations of black currants were located in Morris County, 19 in Monmouth, 10 in Sussex, 1 in Warren, and 1 in Passaic Counties. In the area scouted, black currants were found in only one nursery.

Investigations: General scouting to locate pine, Ribes and infection conducted during summer months by one or two cooperative scouts - state wide survey of forest types, by towns, made by Hirt during 1927 - this detailed data have not as yet been summarized.

Infection: First found in New Jersey in 1911 on pines at the Newark watershed near Charlotteburg. Since then, infection has been found somewhere in the state every year with exceptions of 1912, 1914, 1915, 1923 and 1929. Scouting in 1927 showed the disease more generally prevalent than ever before, being found on Ribes in 21 localities in seven counties. No pine infection has been reported since 1918.

Future Work: Application of adequate nursery sanitation measures - complete survey of Ribes nigrum and eradication of such bushes - eradication of all Ribes within at least 900 feet of pine plantations and ornamental pine of value - additional scouting in northern section of state to determine, in more detail, pine, Ribes and infection conditions - adequate records and maps to show location of pine plantations, Ribes nigrum, native pine, infection, etc. - general educational work to keep public informed of the disease and its control.

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PENNSYLVANIA

Policy: Prior to 1929, the work was limited chiefly to scouting for pine, Ribes, and infection during the summer months by one or two temporary men employed cooperatively by the State and Federal Departments of Agriculture. The first demonstrations of control methods were held during 1928 by the Department of Forests and Waters in cooperation with the Office of Blister Rust Control. In 1929, the work was definitely organized on the following cooperative basis: The State Department of Agriculture agreed to assume administrative direction of cooperative employees, conduct such control activities as agreed upon each year by the cooperating parties, and to enforce state laws under which blister rust control is conducted. The Department of Forests and Waters agreed to undertake the application of local control measures on state owned forests; cooperate with counties, towns, associations, and individuals in the application of local control measures and provide supervision and checking of such work. In 1930, the Department of Forests and Waters assumed the responsibility, through its state blister rust leader and district foresters, of directing all control activities in the state. Most of the Ribes eradication work during 1929 and all that done in 1930 was performed on state lands.

Acreage of white pine: Pure, 91,897 acres; mixed, 126,101 acres; pine restocking in types other than white pine, 157,630 acres; total, 375,628 acres. In addition, there is a vast unestimated acreage containing less than 20 percent pine stocking in mixture with other species. These figures are based on the 1927 cartographical survey. Over 41 million white pines have been distributed from the state nurseries since 1903. In 1922, a survey was made of white pine stands in Wayne and Susquehanna Counties.

Cooperation: The only individual cooperation on regular control work was secured in 1929, when 18 owners expended \$170.00 in eradicating Ribes. However, a small amount of unsupervised control work was performed around pine plantations on the Fox Estate in Clarion County during 1928.

Ribes eradication: The only control work prior to 1929 was in connection with the protection of three state nurseries. This control project was begun in 1924 at the Clearfield nursery, and in 1926 and 1928 this area was reworked. In 1927 the Greenwood and Mont Alto nurseries were initially protected. During 1928, three small demonstrations of control work were given by federal men for the benefit of members of the State Department of Forests and Waters. The individual cooperation in 1929 resulted in 121 acres being eradicated of 1100 wild Ribes and 500 cultivated bushes at a cost of \$170.00 to the owners and \$37.00 to the state. The state land projects during 1929 and 1930 cleared 17,508 acres of 969,566 wild Ribes and 916 cultivated bushes at a cost of \$12,490.07. This state work includes 886 acres eradicated of 7,248 Ribes in connection with nursery sanitation projects during 1930.

The white pines at Hearts Content, on the Allegheny National Forest, were also protected in 1929 by the Forest Service in cooperation with the Bureau of Plant Industry. A total of 461 acres were cleared of 23,020 wild Ribes and 8 cultivated bushes at a cost of \$198.30.

Public Forests: In 1926, the 21 state forests totalled 1,131,783 acres. There are also two national forests, the Allegheny and the Tobyhanna. Apparently, the amount of native white pine on these forests is rather limited. However, over 21 million white pines have been planted on the state forests since 1903. The Hearts Content tract, comprising 461 acres on the Allegheny National Forest was initially cleared of Ribes during 1929. Also, 23 eradication projects were conducted in eight state forest districts. A total of 4,877 acres of state land was eradicated of 305,583 Ribes at a cost of \$3,348.96. During 1930, 67 state land projects in 15 of the state forest districts resulted in 11,745 acres being cleared of 656,763 wild and 863 cultivated Ribes at a cost of \$8,631.48. Plans have been made to rework the Hearts Content tract on the Allegheny National Forest during the spring of 1931.

Plantations: Since 1903, the six state nurseries have distributed to individuals nearly 20 million white pines. In addition, these nurseries have supplied over 21 million white pines for planting on the state forests. A complete record of all these plantings is on file at the office of the Department of Forests and Waters. An examination of many of the plantings during 1928, 1929 and 1930 resulted in the blister rust being found on pines in several of the areas. During 1929 and 1930, many of these plantations on state land were cleared of Ribes. When the disease has been located in private plantings, the owners have been fully informed regarding conditions.

Nursery sanitation: Nursery sanitation has been restricted to three state nurseries located at Clearfield, Greenwood and Mont Alto. Ribes eradication work was first conducted around the Clearfield nursery in 1924. During 1926, a re-examination was made within a 900 foot protection zone. The area was again reworked in 1928 including all white pine plantations in the vicinity of the nursery and for a distance of 900 feet beyond the plantings. In 1927, initial control work was performed at the Greenwood and Mont Alto nurseries. During 1930, all three state nurseries were re-eradicated of Ribes and protected by 1500 foot sanitation zones. This 1930 work resulted in 886 acres being cleared of 7,248 wild Ribes at a cost of \$507.63.

The amount of white pine grown in commercial nurseries is very limited and used entirely for ornamental purposes. Practically all of these commercial nurseries are located in open situations, where wild Ribes are absent or very scarce.

Ribes nigrum: Cultivated Ribes survey made in Wayne County in 1925 - 279 black currants being found. General scouting and the school campaign show Ribes nigrum planted in most sections of the state, but these bushes are apparently not very numerous. During 1929, a few black currants were eradicated on private lands adjoining state forests which were cleared of wild Ribes. Due to ^{the} small number of black currants found near the white pine areas, it may be possible to eradicate such bushes in conjunction with the regular control work and thus eliminate a special black currant project.

Blister rust surveys and infection: The presence of white pine blister rust was first reported in Pennsylvania by Samuel N. Baxter of Philadelphia, who found infected pines in a nursery near that city in April 1905. This report, corroborated by the U. S. Department of Agriculture, is the earliest known record of the disease in this country. A state nursery inspector states that blister rust was found at another nursery near Philadelphia in 1910 or 1911. Infected pines were located by J. F. Collins during 1909, in a plantation at Lewistown Junction. The disease was reported almost yearly thereafter in various counties and frequently noticed on planted foreign stock. Between 1903 and 1910, nearly a half million white pine seedlings were imported into Pennsylvania from European nurseries.

The cultivated Ribes survey in Wayne County, during 1925, resulted in the location of 2,051 cultivated Ribes. Of these, 279 were black currants, 1,496 prickly gooseberries, 250 cultivated gooseberries, and 26 ornamental Ribes - sixty-two gardens contained black currants - blister rust was found at Calicoon on pines and black currants, at Rileysville on black currants, at Damascus on pines and wild Ribes, and at Laurella on black currants. The infection at Laurella is a new location, the rust being found previous years in other places.

During 1926, scouting was performed in four northern counties, the rust being found on Ribes nigrum (2 bushes in each case) in the

19

The first thing I noticed when I stepped out of the car was the cold. It was a sharp contrast to the warm blanket I had been sitting under. I looked up at the sky, which was a pale, overcast grey. The air was thick with a damp, wintry fog. I took a deep breath, feeling the cold air fill my lungs. The ground beneath my feet was a mix of wet pavement and patches of snow. I walked towards the building, my boots crunching on the snow. The building was a large, multi-story structure with many windows. Some of the windows were lit up, while others were dark. I walked up the stairs to the second floor, where I found a room with a desk and a chair. I sat down at the desk, looking at the papers in front of me. The papers were old and yellowed with age. I picked up one of the papers and read it. It was a letter from a friend, written in a cursive hand. The letter was dated from a few years ago. I read the letter slowly, feeling a sense of nostalgia. The letter was from a friend I had not seen in a long time. I felt a lump in my throat as I read the letter. I closed the letter and looked out the window. The fog was still there, but it seemed a little less oppressive. I took another deep breath and felt a sense of peace.

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I walked out of the room and down the stairs. The cold air was still there, but it felt different now. It felt like a friend. I walked outside and looked at the sky. The fog was still there, but it was a little less dense. I took a deep breath and felt a sense of peace. I walked towards the building, my boots crunching on the snow. The building was a large, multi-story structure with many windows. Some of the windows were lit up, while others were dark. I walked up the stairs to the second floor, where I found a room with a desk and a chair. I sat down at the desk, looking at the papers in front of me. The papers were old and yellowed with age. I picked up one of the papers and read it. It was a letter from a friend, written in a cursive hand. The letter was dated from a few years ago. I read the letter slowly, feeling a sense of nostalgia. The letter was from a friend I had not seen in a long time. I felt a lump in my throat as I read the letter. I closed the letter and looked out the window. The fog was still there, but it seemed a little less oppressive. I took another deep breath and felt a sense of peace.

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counties of Monroe, Pike, Wyoming, and Lackawana. In Brooklyn, infected wild Ribes were located.

During 1927, a cooperative school survey to locate the rust was made in 57 counties - 14,000 packets (each containing instructions to the teacher, a sheet of information, colored illustrations, ten small envelopes for specimens, a return envelope, and a report form) were sent to each school outside Pittsburg and Philadelphia. In the 53 counties reporting, returns were received from 1,716 schools. These schools reported that 13,061 gardens had been examined, and 253 of these schools sent in 465 envelopes containing specimens infected with blister rust. The rust findings are distributed over 37 counties, and the area so affected extends nearly to the Ohio border on the west, on the south to the Maryland line. Since the number of envelopes submitted was 7,123, the percentage containing blister rust was 6.5%; similarly, the percentage of schools reporting rust was 14.7%. Additional reports were received during 1928 from 50 schools in 7 different counties covering the examination of 365 gardens. These additional 1928 reports contained only one specimen of blister rust.

General scouting in 1927 revealed the presence of the rust in five additional counties (Bucks, Monroe, Luzerne, Columbia, and Clarion); all of these, except Monroe, were new counties for the rust. At Clarion, a stand of pine reproduction was found to be quite heavily infected with young cankers.

In 1928, a somewhat similar infection survey was conducted by utilizing the fire warden personnel (4100 men) of the Department of Forests and Waters. Reports were received from 171 or 4 percent, of the 4100 wardens, scattered over 50 of the 53 counties in the state. These men examined 3,550 Ribes in 501 locations. A total of 91 wardens submitted 269 Ribes specimens, 14 of which were infected with the rust.

A check was also made during 1928 in 28 of the 37 counties where infected Ribes were located by the 1927 school survey. In the course of this work, a scout visited the vicinity of 144 schools which reported the rust in 1927. As a result, the disease was found again near 49 of these schools. The scout examined the Ribes in 204 gardens, and found infected bushes in 64.

During 1928, some additional scouting was also done by federal and state men. As a result of all surveys and scout work in 1927 and 1928, the blister rust was found on Ribes in 43 counties, and on pine in nine locations, scattered over six counties as follows: Cameron, 1; Clarion, 1; Clinton, 1; Lycoming, 1; Potter, 2; Wayne, 3. In three areas, the damage to young pine was severe, while in others,

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the rust was in its initial stage. Up to and including 1928, pine infections were known to have been present in ten counties of Pennsylvania.

Scouting was conducted by two temporary agents during the summer months of 1929 to determine the amount of infection on Ribes in the southern half of the state from the western edge of the Alleghenies east to the New Jersey border. A total of 31 counties were visited and 932 locations containing 13402 Ribes were examined. Only 14 bushes (all Ribes nigrum) in 7 locations were found diseased. In addition, a Ribes infection survey was made by the Department of Forests and Waters through their field personnel, numbering about 150 men. In this survey, 296 locations were examined for Ribes infection in 38 counties; the number of plants totalling 4,030. Blister rust was found in 15 locations in 11 counties, in all of which infection had been previously located. The results of these two surveys indicated that infection was exceptionally light on Ribes during 1929, probably due to the extended period of drought. In the general scouting carried on by Hodgkins in cooperation with Clepper and the district foresters in 17 forest districts, pine infection was found in 16 districts comprising 21 counties, in some of which the rust had been previously reported. Scouting during 1930 by Hodgkins and members of the Department of Forests and Waters located pine infection in 3 additional counties. Many new infection areas were also found in counties where the rust was previously known to exist. The disease has now been located in pine in 30 of the 67 counties in the state. The rust is known to be present in the state from the New York border on the north to the Maryland line on the south. It exists in the counties along the Delaware River on the east and extends across the state westward nearly to the Ohio line. The disease can doubtless be found in any section of the state where pine and Ribes association occurs.

MICHIGAN

Policy: Prior to 1927, blister rust work was restricted to a limited amount of scouting for infection on Ribes and pine by temporary employees during the summer months. In 1927, a permanent agent was assigned to take charge of all blister rust control activities in the state. However, no control work was conducted prior to 1928. During that year, Ribes eradication was begun in one town by means of a town appropriation and some individual cooperation. The state legislature established a definite blister rust control law in 1929 and made available \$20,000 for this work during each of the ensuing two years. As a result, the 1929 and 1930 activities included all phases of control. An additional permanent agent was appointed during the latter part of 1929 and two more permanent men were added to the force in July, 1930.

Pine acreage: Most of the white pine in Michigan is located in the upper half of the lower peninsula. The cartographical survey of 1928 showed pine conditions as follows: pure pine, 28,321 acres; mixed, 685,789 acres; pine restocking in types other than pure and mixed white pine types, 122,769 acres; total 836,879 acres. In addition, there is a considerable acreage of mixed growth which contains less than 20 percent pine stocking.

Cooperation and Ribes Eradication (1928 to 1930 inclusive)

Project	Acreage Erad. Of Ribes	No. Ribes Pulled		Towns	Indiv.	State	Govt.	Total
		Wild	Cult.					
Town (4)	3,300	141,895	341	\$722.70	0	\$737.58	0	\$1,460.28
Individual (50)	5,018	319,762	358	0	\$2200.70	2025.89	0	4,226.59
Public lands*	2,330	165,129	395	0	0	3443.05	\$378.97	3,822.02
Totals	10,648	626,786	1094	\$722.70	\$2200.70	\$6206.52	\$378.97	\$9,508.89

*Only during 1929 and 1930-includes sanitation work around three public nurseries.

In addition during 1929 and 1930, the state expended \$17,477.84 and the Government \$451.77 in locating and eradicating 22,972 Ribes nigrum in 280 towns.

Public forests: In 1926, seventy-eight state forests contained 333,000 acres; two National Forests comprised 127,000 acres - no information is available as to amount of white pine in these tracts.

Plantations: Up to 1925, about 25,400 acres had been planted, but no information is available as to how much of this is white pine. The cartographical survey of 1928 secured partial information on white pine plantings. These data showed 4,846 acres had been planted to white pine.

Nursery Sanitation: During the past few years, annual inspections have been made of pines and Ribes in many of the nurseries. This work by the State Department of Agriculture resulted in the destruction of a large number of black currants by the nurserymen. No complete records of this work are available. The blister rust law passed in 1929 prohibited the possession of the European black currants in the state and also provided for the establishment of control areas. Before the passage of this law, the Commissioner of Agriculture had set aside, by special promulgation, the three principal public nurseries as blister rust control areas. Due to lack of funds, no sanitation work was conducted until 1929, when these three nurseries and environs were eradicated of all currants and gooseberries. Cultivated black currants were also destroyed within a mile radius of each of these nurseries. The protective zone around one of these nurseries (Dunbar Experiment Station) was extended during 1930 when 160 acres were cleared of 45,236 wild Ribes and 4 cultivated bushes at a cost of \$779.58. Sixty acres of this 1930 work was re-eradication.

Ribes nigrum: A regulation issued by the Commissioner of Agriculture in 1928 prohibited the possession of Ribes nigrum in counties where infection had been found. The blister rust law enacted in 1929 prohibits the possession of such bushes anywhere in the state. During 1928, a sample black currant survey was conducted in Sheridan Township, Clare County, for the purpose of estimating the time and expense necessary to carry on a general state wide black currant eradication program. The project started as a black currant survey, but developed into one covering all cultivated Ribes. Out of a total of 213 farms in the township, 80 had cultivated bushes as follows: 424 red currants, 215 gooseberries, 121 flowering currants, and 90 black currants - total, 850 bushes. It took one man five days to make the survey. He traveled 168 miles, interviewed 210 persons, at a total cost of \$56.76. During 1929, systematic eradication of cultivated black currants was begun on a county-wide scale. Five lower peninsula counties (Cheboygan, Roscommon, Missaukee, Newaygo, and Montcalm) were completed, and the larger portion of two upper peninsula counties (Marquette and Gogebic) was also canvassed. As a result, 5,194 Ribes nigrum were destroyed at a total cost of \$6,000.87 to the State and \$451.77 to the Government. The black currant eradication project was continued during 1930 in 136 towns, 134 of which were completed. A total of 17,778 black currants were eradicated at a cost of \$11,476.97 to the state.

Blister rust infection: General scouting for infection has been conducted during the past several summers. However, it was not until 1927 that the disease was found to be general on Ribes nigrum in the southern peninsula. The disease was first found in 1916 on imported pines in an Oakland County nursery - Additional infections were located in Oakland County during 1918, 1919 and 1922. Also, infections were found in Kent County in the western part of state during 1922 and 1923. Most of these infections were primary and occurred on imported seedlings.

No additional infections were located from then until 1927. During that year, Ribes infections were found in 56 locations in 18 counties. Scouting of about 7,000 acres of pine in St. Clair, Sanilac, Macomb, Clare and Midland Counties did not reveal any infection.

Infected native white pines were found for the first time in Michigan, during 1928, at Indian River, Tuscarora Township, Cheboygan County. The infected trees numbered about ten. No other diseased pine were located in 1928.

A survey to determine the extent of Ribes infection was conducted in cooperation with the schools during 1928. As a result, infected Ribes were located for the first time in five counties in the upper peninsula. In addition, the survey revealed infected Ribes in nine counties in the lower peninsula; five of this number being new situations and four where infection had been located in 1927. General scouting by the blister rust agent showed Ribes infection in three additional counties on the southern peninsula. Thus, up to 1929, the rust had been found on Ribes in 31 counties and on native pine in Cheboygan County.

The Ribes infection survey in cooperation with the schools was continued during 1929. It resulted in the disease being found in four new places in two additional counties (Delta and Grand Traverse). Diseased Ribes leaves were also sent in from nine locations in three other counties where infection had previously been reported. General scouting by state and federal employees revealed infection on native pine in Marquette and Dickinson Counties. This scouting work also resulted in diseased Ribes being found in Delta County and in six other counties where the rust had been previously located.

In addition to the general scouting performed by the permanent and temporary personnel in Michigan in 1930, several federal agents were temporarily assigned to a special scouting project during the fall in an attempt to locate new pine infection centers. As a result of the 1930 scouting activities, infection on pine was found for the first time in two additional counties (Baraga and Menominee). Up to 1931, the disease has been reported on Ribes in 35 counties, on native pine in five counties, and on planted pine only in two other counties.

Cartographical survey: This survey to determine the location and amount of white pine and other forest types in the entire state was completed during 1929. General information was also secured on Ribes species.

Future work: Application of adequate nursery sanitation measures - complete eradication of Ribes nigrum in state - follow-up survey to inspect and map pine areas as determined by cartographical survey - general scouting to determine infection conditions - protection of all native and planted pine on public forests and on areas owned by individuals.

WISCONSIN

Policy: State blister rust control appropriations of \$7500 annually were made available during the fiscal years 1918 to 1920. The amount was reduced to \$4000 annually during the fiscal years 1921 to 1923. Since that time, no state appropriations have been made for blister rust control. However, a limited amount of such work has been performed since 1923 through funds derived from other state sources and from assistance given by a few individual cooperators. The control work prior to 1924 consisted of local eradication of Ribes to protect pine areas and the destruction of infected pines to prevent the spread of the rust. Except for a small amount of individual cooperation, all this work was performed by state men. The control work in Wisconsin has been supervised by a permanent agent. However, during the past few years, he has been used chiefly on special assignments such as transit inspection, experimental work at the Eau Galle demonstration area, scouting, etc. In 1930, a definite control program was adopted and a permanent state leader appointed to take charge of all blister rust control activities in the state.

Acreage of pine: Pure, 11,127 acres; mixed, 109,756 acres; total, 120,883 acres. There is also a considerable acreage of mixed growth containing white pine stocking of less than 20 percent. Very little restocking of white pine is occurring in any of the types, due in part to grazing, fire and settlement. Of the total pure pine, 8,092 acres are in three counties of Shawano, Oneida and Vilas. Native white pine (pure and mixed) is found in 33 counties, pure stands being present in only nine. Nineteen additional counties have pine plantations only.

Ribes Eradication (1920 - 1930 Inclusive):

Project		Acreage Erad. Of Ribes	No. Ribes Pulled		Cost				Total
			Wild	Cult.	Indiv.	State	Federal B.P.I.	Ind.Ser.	
State Work On	Individual Lands	25,560	1,869,458	24	\$1895.51	13338.74	283.07	-	15,517.32
	State lands	366	60,073	-	-	1202.85*	-	-	1,202.85
	Federal Indian Res.	3,487	383,250	-	-	937.09	-	1909.98	2,847.07
Individual Cooperation		62	12,059	-	40.00	-	-	-	40.00
Federal Work - Eau Galle		732	24,485	-	-	-	511.78	-	511.78
Totals		30,207	2,349,325	24	\$1935.51	15478.68*	794.85	1909.98	\$20,119.02

*Includes \$232.92 expended by the State Conservation Department.

All of the acreage^{listed} in the preceding table, except 1,476 acres, was examined during the period 1920 to 1923 inclusive. Most of this early work was state projects on individuals' lands. However, 124 pine owners assisted by eradicating the most visible Ribes on their properties prior to the state crew work. This assistance by individuals had a value of \$1895.51, including \$21 worth of labor furnished by five owners in 1928. Control measures were applied on the Menomonee Indian Reservation in 1920, 1926 and 1930. The Couderay Reservation at Reserve was protected during 1921. The Interstate Park area, comprising 337 acres, was worked in 1920. An additional 29 acres in this Park were eradicated of Ribes during 1930. No control work was performed in Wisconsin in 1924 and 1925. Since that time, a small amount of Ribes eradication has been conducted each year, all of the cost except \$61 being paid from public funds. This \$61 includes \$40 spent by three pine owners who eradicated Ribes on their lands during 1930. The federal work at Eau Galle was performed in 1922 by the Bureau of Plant Industry as an experiment in control measures. During subsequent years, this area has been studied to determine Ribes regrowth and the importance of ecological factors.

Pine eradication: An attempt was made over a series of years to check the spread of the disease by eradicating infected pines as soon as they were discovered. The work of destroying infected trees and in some cases entire stands was conducted, during the period 1916 to 1922, in 17 areas comprising 1,000 acres. In 1916, 5,615 pines were cut on 213 acres at Lake Waupogasset. During 1918, 500 pines were destroyed on 80 acres at Lewis, and 2,405 pines were pruned at Grantsburg. Over 30,000 board feet of white pine were cut in eradicating diseased trees in 1920.

Public forests: Initial control work completed at Interstate Park, also on most of the pine lands of the Indian Reservation near Keshina - no other data available. In 1926, the state owned 173,000 acres of state forests. These apparently do not contain much white pine.

Plantations: Most of the planting has been done during the last five years - According to the 1927 cartographical survey, 1,262 acres have been planted to white pine in 33 counties. No information available as to protection of these plantations.

Nursery sanitation: In 1925, the state maintained one small nursery. However, since that time, the facilities for raising planting stock have been greatly increased. The pine and Ribes in the commercial nurseries have been inspected annually, but no infection has been found. No information is available as to protection measures.

Infection: First discovered on pine in Polk County in 1916 - has been found since on scattered areas in the Counties of St. Croix, Polk, Barron, Dunn, Pepin, Washburn, Rusk, and Eau Claire in the west

central part of the state, and in Marathon, Waupaca and Shawano Counties in the east central portion. The infected pine in many of these areas have been destroyed in an effort to prevent the spread of the disease. However, there still exists 13 known infection centers in five counties. Spot infections could probably be located in other parts of the state.

Future Work: Adoption of a definite control program, supported by adequate appropriations and carried out under the direction of a permanent state leader. Control activities should include: Adequate nursery sanitation to insure clean planting stock - protection of all pine plantations - eradication of all *Ribes nigrum* - complete initial eradication of *Ribes* to protect native stands, at least 132,833 acres (basis: pine acreage (pure and mixed) plus additional 1/3 acreage for protection strips minus acreage cleared of *Ribes*) - re-examination of present control areas containing 28,833 acres, estimate all this acreage will need to be reworked because of abundance of *Ribes* found originally - complete Eau Galle experiment and prepare final report - extensive scouting to determine present status of disease - preparation of a detailed state map showing location of pine areas, infections, etc.

MINNESOTA

Policy: An effort was made during 1917 to 1919 to eradicate blister rust from the state by the destruction of Ribes and diseased pine in the known infection areas. Late in 1919, the futility of entirely eradicating the disease was realized. From then until 1922, the limited amount of control work was confined to protection of pine areas by the local eradication of Ribes. Since 1923, the work has been restricted to cooperative scouting and studies of blister rust damage and Ribes regrowth by one or two men employed temporarily during the summer months. During 1929, a permanent state leader was appointed to take charge of all blister rust activities in the state, and a blister rust control law was enacted by the state legislature. A definite program and plan of work has been cooperatively developed and approved by the various agencies. Under the general plan of work, the state will aid pine owners by providing trained men to supervise the eradication of Ribes, but the cost of the actual eradication work will be paid by the owners.

Pine acreage: (Based on survey figures of 1928). Pure pine, 173,092 acres; mixed pine, 266,812 acres; pine restocking in types other than white pine, 170,524 acres; total, 610,428 acres. There is also a considerable acreage of mixed growth, which contains less than 20 percent of pine stocking. The natural pine range in Minnesota is north of a line drawn from southern Washington County to the southwestern corner of Kittson County in the extreme northwestern part of the state.

Cooperation: During 1921 and 1922, eleven individuals expended \$154.30 on control work. No control work was performed in state during period 1923-1929 inclusive. In 1930, thirty-five individual cooperators expended \$333.05 in eradicating Ribes.

Ribes eradication: During 1918 to 1922, inclusive, 4,981 acres were cleared of 407,278 wild Ribes at a cost of \$14,180.17, or \$2.85 per acre - Ribes averaged 81.8 bushes per acre. Only 118 cultivated bushes have been eradicated. No Ribes eradication work was performed in the state from 1923 to 1929, inclusive. During 1930, a total of 1466 acres were cleared of 79,877 wild Ribes and 13 cultivated bushes at a cost of \$856.94.

Public forests: The National Forests in Minnesota during 1925 comprised 1,047,941 acres, while state forests had an acreage of 350,000 acres. Considerable white pine, mostly of merchantable size, is known to exist on the National forests. No protection work has been done on these public forests. However, Ribes eradication work was conducted in the Interstate Park during the period 1918 to 1920.

Plantations: According to the Forestry Almanac, up to 1927, a total of 375,000 trees had been planted on farm forests and as demonstration projects, no records available as to how many of these trees were white pines.

Nursery sanitation: The planting stock in the state and commercial nurseries is yearly inspected by state officials. No information is available regarding these inspections or sanitation measures prior to 1930. An examination of the environs of two commercial nurseries in 1930, resulted in 120 acres being cleared of 31,861 Ribes at a cost of \$170.14.

Ribes nigrum: No action has been taken regarding the eradication of this species - the new state policy is to eradicate Ribes nigrum within one mile of valuable white pine. A special survey of black currant conditions was made during 1929 in Duluth and Two Harbors. This work in Duluth resulted in the locating of 233 patches containing 1,272 black currants, while in Two Harbors 39 plantings were found to have 160 Ribes nigrum. In the former town, 62 percent of the Ribes were diseased; but in the latter, only one percent were infected.

Blister rust investigations: 21 permanent pine infection plots established, by state men, in older infection areas to study development of disease. An examination of 2,211 pines in these plots during 1927 showed 9.3 percent were infected. Also, 21 Ribes regrowth plots - summary of conditions in these plots given in state annual report for 1927. Control measures by local eradication of Ribes in 1918 and 1919 were effective in controlling pine infections. The Ribes regrowth, however, was such as to warrant re-eradication five years after the original work. Wild Ribes are widely distributed wherever pine occurs. Ribes cynosbati is most prevalent and very susceptible to the rust. Considerable scouting for pine and infection has been performed by Lindgren; this work is also reported in 1927 annual report. During 1927 and 1928, Hirt completed a survey of forest types in the state, as a basis for the epidemiology study. In 1928, the Ribes return plots and the pine infection plots were rechecked. These plots were re-examined in 1929. A summary of conditions is given in the Minnesota Annual Report for 1929.

Infection: Blister rust was first found in Minnesota during 1916 on pine in a nursery near St. Croix. Later in that year, Ribes infection was located in three areas near Taylors Falls, and another pine infection was found forty miles south of Taylors Falls. Nine new infections were located in 1917, five in 1918, and four in 1919. Since then blister rust has been slowly but steadily spreading north and west. However, the few importations of infected stock, the early control work, and scattered distribution of the pine, have retarded the rate of spread. At the present time, blister rust is known to

be present in 18 counties; occurring on nursery stock in different places in the southern part of the state almost to the Iowa line. On native pine and Ribes, the most southern infections are found in Washington County. The rust occurs in every county along the Wisconsin line from Washington north to Lake County. The western limit is Morrison County; and the northern, St. Louis County (at Tower). Pine infection in natural pine stands has been found in 12 counties as far north as Two Harbors in Lake County, west to Crow Wing County, and south to Washington County.

During 1928, infection scouting was conducted in the principal white pine stands in 14 counties in the northern part of the state. As a result, new infections were found on Ribes in 6 towns in 6 counties, and on pine in the town of Duluth, St. Louis County. In this town, 65 new pine infections and 222 black currant infections were located. The number of new Ribes infections in the other five counties varied from 1 to 18, the maximum number being in the town of Two Riversⁱⁿ Lake County. An extensive scouting project was conducted by Gray and Ritter during 1929. The survey extended northward from Hastings to International Falls, westward to Red Lake and Bemidji, and eastward to the state boundary. A record was kept of the amount of white pine reproduction and Ribes growth. As a result of this scout work, pine infection was found in 18 new locations in four towns. In addition, 229 infected Ribes nigrum were located in Duluth, and Ribes cynosbati were found diseased in five towns.

Future work: Application of adequate nursery sanitation measures to insure clean planting stock - outlawing of Ribes nigrum, and complete eradication of these bushes, especially in natural pine range - continuation of scouting to determine status of rust - conduct follow-up survey to inspect and map pine areas as determined by cartographical survey - application of control measures, especially in stands of young pine growth and re-eradication of early control areas, 4,981 acres - continuation of studies on pine infection and Ribes regrowth - educational and service activities conducted in cooperation with forestry officials and Extension Service.

SPECIAL SUMMARIES OF CONTROL ACTIVITIES
IN NEW ENGLAND AND NEW YORK DURING PERIOD 1922-1930, INCLUSIVE

SUMMARY OF EDUCATIONAL AND SERVICE WORK PERFORMED BY THE
BLISTER RUST CONTROL AGENTS IN NEW ENGLAND AND NEW YORK
DURING THE PERIOD JULY 1, 1922 TO DECEMBER 31, 1930.
BASED ON YEARLY TOTALS FOR ALL STATES

EDUCATION

July-Dec.

	1922	1923	1924	1925	1926	1927	1928	1929	1930	Totals
Meetings addressed.....	251	722	707	627	490	467	363	204	144	3,975
Attendance.....	29,163	32,649	47,071	45,522	33,082	34,690	28,178	23,729	8,275	282,359
Field Dem. meetings.....	335	834	792	418	210	148	159	70	44	3,010
Attendance.....	1,732	6,442	4,050	2,912	5,018	2,646	2,809	1,898	1,022	28,529
Displays placed.....	374	582	647	680	624	647	492	358	215	4,619
Publications distributed.....	35,067	51,308	55,696	68,818	76,697	88,840	62,708	52,332	48,124	539,590
Mimeographed Articles distributed.....	No record	prior to 1928.....					14,953	23,155	20,715	58,823
Items published.....	313	1,203	1,269	1,294	1,202	1,219	1,109	769	518	8,896
	(Est.)									
Posters and signs placed.....	2,500	6,499	13,868*	8,894	8,056	7,041	7,268	4,388	3,445	61,959
Roadside demonstrations placed.....	No record	prior to 1930.....							127	127
SERVICE										
Initial Interviews.....	6,227	14,724	15,984	13,819	12,153	13,120	15,644	9,013	7,905	108,589
Follow-up calls.....	1,924	5,555	6,804	7,380	7,309	8,228	8,625	6,503	5,568	57,896
Personal instruction in field.	1,540	4,274	6,198	11,169	11,559	13,102	8,952	6,741	3,166	66,701

*Includes 4315 posters mailed by the Boston Office to post offices and railroad stations in the agents' districts of New England.

TOWN AND INDIVIDUAL COOPERATION IN RIBES ERADICATION WORK IN
NEW ENGLAND AND NEW YORK DURING THE PERIOD 1922-1930, INCLUSIVE.

(By Years)

Year	Town Cooperation		Individual Cooperation		
	No. Towns Cooperating	Amount Expended	No. Individuals Cooperating Cult. Ribes Erad. Only	Wild & Cult. Ribes erad.	Amount Spent By Individuals
1922	59	\$16,150.39	-	971	\$28,783.42
1923	122	40,150.59	698	1,968	40,969.47
1924	147	47,822.14	1,714	3,059	45,698.43
1925	132	40,351.31	958	3,069	39,720.06
1926	123	41,223.95	741	3,283	44,172.88*
1927	125	38,299.74	894	3,537	49,040.81
1928	145	39,038.73	991	3,390	54,667.68
1929	156	41,323.28	1,016	3,353	50,449.29
1930	186	46,128.12	971	2,435	36,025.22**
Totals	1,195	\$350,488.25	7,983	25,065	\$389,527.26

(By States)

State	Town Cooperation		Individual Cooperation		
	No. Towns Cooperating	Amount Expended	No. Individuals Cooperating Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	Amount Spent By Individuals
Maine	402	\$66,446.04	621	10,376	\$77,696.37
N.H.	765	275,774.26	-	494	36,244.93
Vt.	11	537.71	172	1,666	59,447.78
Mass.	-	-	6,901	7,950	68,718.78
R.I.	-	-	34	2	31.36
Conn.	17	7,730.24	195	270	9,263.69
N.Y.	-	-	60	4,307	138,124.35
Totals	1,195	\$350,488.25	7,983	25,065	\$389,527.26

*Individuals in Vermont spent an additional \$82.00 for cultivated Ribes compensation.

**Individuals in Connecticut spent an additional \$76.25 for cultivated Ribes compensation.

SUMMARY OF RIBES ERADICATION IN NEW ENGLAND AND NEW YORK
DURING PERIOD 1922-1930, INCLUSIVE.

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled			Cost To				Per Acre	
		Wild	Cult.	Indiv.	Towns	State	Govt.	Total	Cost	Ribes
1922	476621	4849812	16061	\$28783.42	16150.39	48683.66	3200.90	\$96818.37	.20	10.7
1923	892639	7969917	55074	40969.47	40150.59	76951.28	2812.53	160883.87	.18	9.0
1924	1008042	9466271	73858	45698.43	47822.14	71682.56	3972.39	169175.52	.167	9.4
1925	834428	7296670	59458	39720.06	40351.31	56251.26	2169.23	138491.86	.166	8.7
1926	814439	8838000	51471	44172.88	41223.95	60292.28	2693.80	148382.91	.182	10.8
1927	894501	8032574	48738	49040.81	38299.74	62552.15	3409.71	153302.41	.171	8.9
1928	879812	6677961	58223	54667.68	39038.73	60988.80	3311.52	158006.73	.18	7.6
1929	919755	7262127	74654	50449.29	41323.28	76827.92	2694.11	171294.60	.186	7.9
1930	722561	7452394	30924	35329.72	46128.12	66997.34	3605.42	152060.60	.210	10.3
Totals	7442798	67845726	468461	\$388831.76	350488.25	581227.25	27869.61	\$1348416.87	.181	9.1

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled			Cost To				Per Acre	
		Wild	Cult.	Indiv.	Towns	State	Govt.	Total	Cost	Ribes
Maine	2400343	16594841	107805	\$77696.37	66446.04	13255.63	20495.22	\$177893.26	.074	6.9
N. H.	2177187	25613992	77091	36244.93	275774.26	82414.08	-	394433.27	.181	11.8
Vt.	176306	1883703	5753	59447.78	537.71	10463.27	403.50	70852.26	.402	10.7
Mass.	1739104	10509934	218736	68023.28	-	157919.62	-	225942.90	.130	6.0
R. I.	180331	113435	7816	31.36	-	12399.62	1380.76	13811.74	.077	0.6
Conn.	251007	1628811	21441	9263.69	7730.24	35950.05	5575.13	58519.11	.233	6.5
N. Y.	518520	11501010	29819	138124.35	-	268824.98	15.00	406964.33	.785	22.2
Totals	7442798	67845726	468461	\$388831.76	350488.25	581227.25	27869.61	\$1348416.87	.181	9.1

SUMMARY OF RIBES ERADICATION WORK IN COOPERATION WITH INDIVIDUALS
IN NEW ENGLAND AND NEW YORK DURING PERIOD 1922-1930, INCLUSIVE.

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		Cost To				Total	Per Acre	
		Wild	Cult.	Indiv.	Towns	State	Govt.		Cost	Ribes
1922	93828	2886282	8251	\$28035.13	820.78	10769.74	-	\$39625.65	.422	30.8
1923	174875	3954508	31338	40969.47	6910.47	16356.29	-	64236.23	.367	22.6
1924	205084	4235627	37532	44622.07	8000.65	18263.02	-	70885.74	.345	20.6
1925	209831	3567024	44811	39720.06	7089.87	21301.74	16.67	68128.34	.325	17.0
1926	241686	5485072	36075	44172.88	6747.56	24909.27	264.90	76094.61	.315	22.7
1927	291611	4993488	34066	49011.06	8375.41	28552.54	-	85939.01	.295	17.0
1928	323218	4027921	37104	54667.68	8089.87	30180.65	315.88	93254.08	.289	12.5
1929	282152	4293474	40216	50374.79	7010.13	36164.24	100.00	93649.16	.332	15.2
1930	153388	3045715	18502	33565.41	6074.88	21594.75	536.00	61771.04	.403	19.8
Totals	1975673	36489111	287895	\$385138.55	59119.62	208092.24	1233.45	\$653583.86	.331	18.5

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost To				Total	Per Acre	
		Wild	Cult.	Indiv.	Towns	State	Govt.		Cost	Ribes
Maine	291402	15783519	105467	\$76619.92	58152.91	64.17	16.67	\$134853.67	.463	54.2
N. H.	133702	3108594	9068	36244.93	429.00	9321.59	-	45995.52	.344	23.3
Vt.	172463	1844074	5533	59447.78	537.71	8344.90	403.50	68733.89	.399	10.7
Mass.	914832	7340163	137888	68023.28	-	64546.38	-	132569.66	.145	8.0
R. I.	540	2175	1000	31.36	-	94.72	-	126.08	.233	4.0
Conn.	54823	294691	5391	6646.93	-	5756.57	798.28	13201.78	.241	5.4
N. Y.	407911	8115895	23548	138124.35	-	119963.91	15.00	258103.26	.633	19.9
Totals	1975673	36489111	287895	\$385138.55	59119.62	208092.24	1233.45	\$653583.86	.331	18.5

SUMMARY OF RIBES ERADICATION WORK IN COOPERATION WITH TOWNS
IN NEW ENGLAND DURING THE PERIOD 1922-1930, INCLUSIVE.

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		Cost				Total	Per Acre	
		Wild	Cult.	Towns	State	Indiv.	Govt.		Cost	Ribes
1922	156045	1218793	7551	\$16077.90*	\$6064.96	-	-	\$22142.86*	\$.142	7.8
1923	251821	3058288	20718	33240.12	14485.22	-	-	47725.34	.189	12.1
1924	326341	3991645	16071	40897.85**	14878.27	-	-	55776.12**	.169	12.2
1925	251669	2983216	6118	33075.04	8271.20	-	-	41346.24	.164	11.8
1926	208346	2896113	3086	34476.39	10583.68	-	-	45060.07	.216	13.4
1927	220576	2447492	2572	29924.33	11416.16	-	-	41340.49	.187	11.1
1928	218986	1972684	6013	30948.86	8043.37	-	-	38992.23	.178	9.1
1929	260266	2236875	14987	34313.15	9399.28	-	\$817.55	44529.98	.171	8.6
1930	241127	3027616	3799	40053.24	9604.30	\$752.00	659.17	51068.71	.212	12.6
Totals	2135177	23832722	80915	\$293006.88	\$92746.44	\$752.00	\$1476.72	\$387982.04	\$.182	13.5

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost				Total	Per Acre	
		Wild	Cult.	Towns	State	Indiv.	Govt.		Cost	Ribes
Maine	14462	529508	1281	\$8106.73	-	\$752.00	-	\$8858.73	\$.613	36.6
N. H.	2038485	22270720	67414	275345.26	70952.89	-	-	346298.15	.170	10.9
Conn.	82230	1032494	12220	9554.89	21793.55	-	1476.72	32825.16	.399	12.6
Totals	2135177	23832722	80915	293006.88	\$92746.44	\$752.00	\$1476.72	\$387982.04	\$.182	13.5

*Includes \$748.29 raised by individuals in Connecticut.
** " \$1076.36 " " " " "

SUMMARY OF STATE SCOUT WORK ON INDIVIDUALS' LANDS
IN NEW ENGLAND DURING PERIOD 1922-1930, INCLUSIVE.

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		Cost To			Total	Per Acre	
		Wild	Cult.	States	Govt.	Indiv.		Cost	Ribes
1922	218,736	294,023	259	\$5,178.51	\$3,200.90	-	\$8,379.41	.039	1.3
1923	457,209	233,169	2,999	12,032.26	2,812.53	-	14,844.79	.033	0.5
1924	460,739	131,233	20,143	12,076.07	3,972.39	-	16,048.46	.035	0.3
1925	366,763	476,012	8,440	17,217.42*	2,152.56	-	19,369.98*	.053	1.2
1926	346,010	106,194	11,620	11,257.44	2,428.90	-	13,686.34	.039	0.31
1927	368,161	126,354	8,575	10,368.86	3,409.71	\$29.75	13,808.32	.037	0.34
1928	318,502	76,756	10,766	12,319.26	2,678.39	-	14,997.65	.048	0.24
1929	338,247	111,510	14,285	11,506.99	1,776.56	74.50	13,358.05	.040	0.4
1930	279,070	137,006	6,602	11,487.10	2,285.25	26.50	13,798.85	.049	0.5
Totals	3,153,437	1,692,257	83,689	103,443.91	24,717.19	130.75	\$128,291.85	.041	0.5

*Includes \$186.40 town money expended in Maine during 1925.

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost To			Total	Per Acre	
		Wild	Cult.	States	Govt.	Indiv.		Cost	Ribes
Maine	2,094,213	165,187	913	\$13,178.00	\$20,478.55	-	\$33,656.55	\$.016	.07
Mass.	758,886	1,106,688	72,159	67,528.20	-	-	67,528.20	.089	1.5
R. I.	179,010	105,034	6,746	12,180.90	1,380.76	-	13,561.66	.076	0.6
Conn.	93,191	285,451	3,116	6,837.10	2,857.88	130.75	9,825.73	.105	3.1
N. Y.	28,137	29,897	755	3,719.71	-	-	3,719.71	.132	1.1
Totals	3,153,437	1,692,257	83,689	103,443.91	24,717.19	130.75	128,291.85	.041	0.5

In addition to the above, 140 acres were cleared of 15,513 wild and 144 cultivated Ribes at a cost of \$53.86 in the application of regulatory measures in Maine during 1927, 1928 and 1929.

SUMMARY OF RIBES ERADICATION WORK ON PUBLIC LANDS IN NEW ENGLAND
AND NEW YORK DURING PERIOD 1922-1930, INCLUSIVE.

(By Years)

Year	Acreage Cleared Of Ribes	Ribes Pulled		Cost To			Per Acre	
		Wild	Cult.	States	Govt.	Total	Cost	Ribes
1922	8,012	450,714	-	\$26,670.45	-	\$26,670.45	\$3.33	56.3
1923	8,734	723,952	19	34,077.51	-	34,077.51	3.90	82.9
1924	15,878	1,107,766	112	26,465.20	-	26,465.20	1.66	69.8
1925	6,165	270,413	89	9,647.30	-	9,647.30	1.56	40.6
1926	18,397	350,621	690	13,541.89	-	13,541.89	.736	19.1
1927	14,098	463,853	3,381	12,197.66	-	12,197.66	.865	32.9
1928	19,091	600,388	4,340	10,436.52	317.25	10,753.77	.563	31.4
1929	39,020	606,354	5,166	19,729.48	-	19,729.48	.506	15.5
1930	24,470	1,083,725	1,196	19,743.27	125.00	19,868.27	.812	44.3
Totals	153,865	5,657,791	14,993	\$172,509.28	\$442.25	172,951.53	\$ 1.12	36.8

(By States)

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost To			Per Acre	
		Wild	Cult.	States	Govt.	Total	Cost	Ribes
N. H.	4,900	234,678	609	\$2,129.52	-	\$2,129.52	\$.434	47.9
Vt.	3,793	39,539	220	2,025.86	-	2,025.86	.534	10.4
Mass.	65,189	2,062,813	8,560	25,508.22	-	25,508.22	.391	31.6
R. I.	781	6,226	70	124.00	-	124.00	.159	8.0
Conn.	5,772	12,631	71	682.14	442.25	1,124.39	.195	2.2
N. Y.	73,430	3,301,904	5,463	142,039.54	-	142,039.54	1.93	45.0
Totals	153,865	5,657,791	14,993	\$172,509.28	\$442.25	\$172,951.53	\$1.12	36.8

SUMMARY OF SPECIAL NURSERY SANITATION PROJECTS IN
NEW ENGLAND AND NEW YORK DURING 1930.

State	Acreage Cleared Of Ribes	Ribes Pulled		Cost To			Per Acre	
		Wild	Cult.	Indiv.	States	Total	Cost	Ribes
Maine	126	101,114	-	\$324.45	\$146.00	\$470.45	3.73	802.5
N. H.	100	-	-	-	10.08	10.08	.10	-
Vt.	50	90	-	-	92.51	92.51	1.85	1.8
Mass.	197	270	129	-	336.82	336.82	1.71	1.4
R. I.	-	-	-	-	-	-	-	-
Conn.	14,991	3,544	643	661.36	880.69	1542.05	.103	0.2
N. Y.	9,042	53,314	53	-	3,101.82	3101.82	.343	5.9
Totals	24,506	158,332	825	\$985.81	\$4,567.92	\$5553.73	.227	6.5

Prior to 1930, nursery sanitation work was included under "Individual Cooperation" or "State Work on Public Lands".

SUMMARY, BY STATES, OF ACREAGE RE-ERADICATED OF RIBES IN NEW ENGLAND
AND NEW YORK DURING PERIOD 1923-1930, INCLUSIVE.

State	1923	1924	1925	1926	1927	1928	1929	1930	Totals
Maine	20	1,240	644	728	1,010	708	232	810	5,392
N. H.	630	6,668	41,734	32,046	74,034	83,201	96,425	7,166	341,904
Vt.	1,240	974	1,396	5,850	2,315	2,292	3,005	5,877	22,949
Mass.	16,943	1,311	4,256	6,145	14,942	15,875	16,336	28,258	104,066
R. I.	3,240	5,000	0	2,670	0	0	0	0	10,910
Conn.	0	0	2,370	570	8,836	1,124	6,203	13,419	32,522
N. Y.	0	0	0	0	0	10,395	9,291	17,369	37,055
Totals	22,073	15,193	50,400	48,009	101,137	113,595	131,492	72,899	554,798

No record of any re-eradication work prior to 1923.
Detailed figures as to Ribes and costs are not available,
except for 1926-1929, inclusive, and Ribes and cost figures
are lacking for the 1926 re-eradication work in Massachusetts.
A summary for 1930 is given in this report on pages 44 to 48.

SUMMARY OF BLACK CURRANT ERADICATION (SPECIAL PROJECTS)

(Not included in eradication summaries)

State	Year	No. Towns Worked	Ribes Pulled		Total	Cost
			Black Currants	Other Cult. Ribes		
Mass.	(1) 1930	65	12,190	-	12,190	\$6,259.61
R.I.	1929	22	5,703	906	6,609	2,991.86
R.I.	1930	18	3,930	31	3,961	3,126.27
Total for (2) Rhode Island		40	9,633	937	10,570	\$6,118.13
Conn.	1930	5	37	2,973	3,010	\$938.60
New York	1928	22	8,825	439	9,264	\$3,933.14
New York	1929	47	4,048	322	4,370	4,745.10
New York	1930	58	2,455	-	2,455	2,959.35
Total for New York		127	15,328	761	16,089	\$11,637.59
Totals New England and New York		237	37,188	4,671	41,859	\$24,953.93
Michigan	1929	144	5,194	-	5,194	\$6,452.64
Michigan	1930	136	17,778	-	17,778	11,476.97
Total for Michigan		280	22,972	-	22,972	\$17,929.61
Totals All States	-	517	60,160	4,671	64,831	\$42,883.54

(1) Since 1927, 26,599 European black currants have been eradicated in Massachusetts in connection with regular and special control projects. To date, Ribes nigrum eradication work has been completed in 150 towns and partially completed in 46 additional towns. The black currant data were kept separate only during 1930.

(2) In 1928, a total of 127 Ribes nigrum were eradicated in four towns in Rhode Island for which no cost data is available. In addition, a systematic Ribes nigrum survey was conducted by the Vermont agents during 1928 and 1929. Such work was completed in 20 towns and partially finished in 3 additional towns. A total of 224 Ribes nigrum were located and 183 were destroyed. No cost figures are available for this work.

SUMMARY OF NURSERY SANITATION WORK NOT INCLUDED
IN REGULAR ERADICATION SUMMARIES

State	Year	Ribes Pulled			Cost
		Wild	Cult.	Total	
Mass.	1925	-	527	527	\$253.31
Mass.	1926	-	29	29	114.58
Mass.	1927	2,902	1,007	3,909	2,213.41
Mass.	1928	2,040	2,338	4,378	3,340.67
Mass.	1929	720	1,235	1,955	2,756.79
Sub-total for Mass.	-	5,662	5,136	10,798	\$8,678.76
Conn.	1927	-	1,072	1,072	662.74
Grand total	-	5,662	6,208	11,870	\$9,341.50

SUMMARY OF RIBES ERADICATION PERFORMED ON GOVERNMENT OWNED LANDS
IN EASTERN STATES DURING PERIOD 1924-1930 INCL.

(Initial and Re-Eradication Work)

Project	Years Work Performed	Acreage Eradicated of Ribes	No. Ribes Pulled		Total Cost	Per Acre	
			Wild	Cult.		Cost	Ribes
Allegheny National Forest	1929	461	23,020	8	\$198.30	\$.430	49.9
White Mountain National Forest	1924-1927, Incl.	6384	142,556	-	2271.24	.356	22.3
Monongahela National Forest	1929 and 1930	766	3,501	74	196.96	.257	4.6
Shenandoah National Forest	1929 and 1930		3,129	2	231.99		
Totals For National Forests	-	7611	172,206	84	2898.49		
Acadia National Park	1929 and 1930	3910	314,314	-	5902.32	1.51	80.4
Totals - All Projects	-		486,520	84	8801.31		

These data are not included in the eradication summaries in this report.

SUMMARY OF STATE COMPENSATION PAID YEARLY FOR CULTIVATED RIBES
DESTROYED IN NEW ENGLAND AND NEW YORK DURING THE PERIOD 1922-1930, INCLUSIVE.

(By Years)

Year	Total Number Cultivated Ribes Removed	Number Bushes For Which Compensation Was Actually Paid	Number Persons Receiving Compensation	Amount Paid In Reimbursement
1922	16,061	727	50	\$289.49
1923	55,074	1,490	59	574.37
1924	73,858	6,106	84	1,572.11
1925	59,985	1,310	46	506.91
1926	51,500	4,187*	33*	1,531.60*
1927	50,817	4,544	143	1,731.96
1928	69,825	3,262	182	1,287.54
1929	86,868	4,079	454	1,790.01
1930	52,540	2,630**	88**	1,149.70**
Totals	516,528	28,335	1,139	\$10,433.69

(By States)

State	Total Number Cultivated Ribes Removed	Number Bushes For Which Compensation Was Actually Paid	Number Persons Receiving Compensation	Amount Paid In Reimbursement
Maine	107,805	0	0	0
N. H.	77,091	570	23	\$129.47
Vt.	5,753	1,522	121	738.66
Mass.	236,062	22,539	347	8,106.25
R. I.	18,386	94	7	35.85
Conn.	25,523	175	16	103.50
N. Y.	45,908	3,435	625	1,319.96
Totals	516,528	28,335	1,139	\$10,433.69

*Includes \$82.00 compensation paid by individual cooperators in Vermont to 9 owners of cultivated Ribes for the removal of 164 bushes.

**Includes \$76.25 compensation paid by individual cooperators in Connecticut to 12 owners of cultivated Ribes for the removal of 114 bushes.

In Massachusetts, during 1930, a total of 45 persons claimed \$925.80 for the destruction of 2183 bushes. Twenty-nine of these claims were paid during 1930 involving a reimbursement by the State of \$343.80 for 844 Ribes destroyed. The remaining claims will be settled in the spring of 1931.

Total number of cultivated Ribes destroyed during years 1925-1930, inclusive, include such bushes pulled in connection with special nursery sanitation and black currant eradication projects in Massachusetts, Rhode Island, Connecticut and New York, which were not included in the eradication summaries in this report.

EXPENDITURES - EASTERN CONTROL PROGRAM

Calendar Year	Federal	State						Grand Totals
		State Appropriations	Nursery Funds	Towns	Individuals	Others	Total	
1922	\$77,377.30*	\$93,537.07*	\$500.00	\$16,150.39	\$28,783.42	-	\$138,970.88	216,348.18
1923	118,808.49	113,069.81	500.00	40,150.59	40,969.47	\$6,139.10	200,828.97	319,637.46
1924	122,831.96	117,121.46	882.50	47,822.14	45,698.43	7,125.03	218,649.56	341,481.52
1925	131,098.84	100,352.25	753.31	40,351.31	39,720.06	1,695.47	182,872.40	313,971.24
1926	130,268.07	105,917.41	614.58	41,223.95	44,254.88**	2,027.44	194,038.26	324,306.33
1927	132,460.90	120,566.14	3,213.41	38,299.74	49,040.81	1,767.50	212,887.60	345,348.50
1928	131,129.82	125,671.02	3,993.17	39,038.73	54,667.68	627.19	223,997.79	355,127.61
1929	120,139.95	134,292.63	3,256.79	41,323.28	50,449.29	2,201.88	231,523.87	351,663.82
1930	125,265.99	119,138.75	1,365.26	46,128.12	36,101.47***	2,146.15	204,879.75	330,145.74
Totals	1,089,381.32	1,029,666.54	15,079.02	350,488.25	389,685.51	23,729.76	1,808,649.08	2,898,030.40

*Figures for 1922 Federal and state appropriation expenditures taken from summary prepared by C.J.P. - 5/1/28.

prepared by C.J.F. - 5/1/28.

**Includes \$82.00 spent by individuals in Vermont for cultivated Ribes compensation.

[illegible]

SUMMARIES OF TOWN AND INDIVIDUAL COOPERATION
IN NEW ENGLAND AND NEW YORK DURING PERIOD 1917-1930, INCLUSIVE.

Note: In the following tables, the amounts listed for individual cooperation do not agree with those given in the preceding Ribes eradication summaries, due to the fact that the control tables include only individual funds expended in eradicating Ribes, while the following summaries represent all expenditures by individuals. A single exception occurs in the following New York summary, which does not include \$3664.20 spent by individuals in 1922 on unsupervised Ribes eradication work.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION
IN NEW ENGLAND AND NEW YORK DURING PERIOD 1917-1930.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917	-	5	\$42.86	-	-
1918	-	16	6133.45	43	\$7,200.00
1919	-	55	11,960.56	38	6,310.00
1920	-	168	9,650.14	51	8,500.00
1921	-	142	12,852.07	34	5,550.00
1922	-	971	25,119.22*	59	19,827.86
1923	698	1968	40,969.47	122	36,380.00
1924	1714	3059	45,698.43	147	47,352.81
1925	958	3069	39,720.06	132	40,989.90
1926	741	3283	44,254.88**	123***	40,425.00***
1927	894	3537	49,040.81	125	38,133.40
1928	991	3390	54,667.68	145	41,126.60
1929	1016	3353	50,449.29	156****	41,385.23****
1930	971	2435	36,101.47*****	186	47,391.50
Totals	7983	25451	\$426,660.39	1361	\$380,572.30

* Does not include \$3664.20 expended by individuals in New York on unsupervised Ribes eradication work.

** Includes \$82.00 spent by individuals in Vermont for cultivated Ribes compensation.

*** In five additional towns in Maine (not appropriating in 1926) \$548.77 was available for control work from balance of 1925 appropriations.

**** In two additional towns in New Hampshire (not appropriating in 1929) \$457.90 was available for control work from balances of 1928 appropriation.

***** Includes \$76.25 spent by individuals (nurserymen) in Connecticut for cultivated Ribes compensation.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN MAINE 1917-1930.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917-1920	-	-	-	-	-
1921	-	30	\$1,163.07	-	-
1922	-	464	4,409.32	8	\$1,300.00
1923	58	1090	8,760.34	39	7,115.00
1924	94	1607	10,619.58	49	8,154.25
1925	47	1548	9,337.30	51	8,000.00
1926	168	1317	9,612.67	40*	6,725.00*
1927	138	1234	9,324.06	43	8,277.00
1928	40	1050	9,567.09	61	10,717.00
1929	35	1111	8,261.32	55	9,485.27
1930	41	955	7,804.69	56	9,100.00
Totals	621	10,406	\$78,859.44	402	\$68,873.52

*In five additional towns (not appropriating in 1926) \$548.77 was available for control work from balances of 1925 appropriations. Also, in four towns appropriating in 1926, \$47.51 was available from 1925 funds.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN NEW HAMPSHIRE 1917-1930.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917	-	5	\$42.86	-	-
1918	-	8	810.95	43	\$7,200.00
1919	-	34	2,053.65	38	6,310.00
1920	-	97	4,764.37	50	8,000.00
1921	-	23	2,688.51	31	4,350.00
1922	-	148	8,004.82	49	16,800.00
1923	-	121	7,635.45	82	28,765.00
1924	-	46	2,582.27	96	38,975.00
1925	-	30	2,090.76	78	32,725.00
1926	-	19	2,734.86	81	33,375.00
1927	-	45	3,722.34	77	28,800.00
1928	-	37	4,534.14	80	28,700.00
1929	-	30	2,814.79	95*	29,300.00*
1930	-	18	2,125.50	127	37,950.00
Totals	-	661	\$46,605.27	927	\$301,250.00

*In two additional towns (not appropriating in 1929)
\$457.89 was available for control work from balances of 1928
appropriation.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN VERMONT
1917 - 1930.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917-1918	-	-	-	-	-
1919	-	1	\$270.00	-	-
1920	-	29	515.61	-	-
1921	-	31	3,235.50	-	-
1922	-	125	5,502.22	-	-
1923	3	220	7,247.34	-	-
1924	27	246	7,392.74	1	\$100.00
1925	38	258	8,137.50	3	264.90
1926	53	162	7,923.94*	1	75.00
1927	15	118	7,106.05	3	56.40
1928	-	222	5,829.97	1	109.60
1929	4	126	5,791.94	1	100.00
1930	32	189	4,598.08	1	100.00
Totals	172	1,727	\$63,550.89	11	\$805.90

*Includes \$82.00 expended by individuals for cultivated Ribes compensation.

1. ANALYSIS OF THE DATA
 (a) ANALYSIS OF THE DATA
 (b) ANALYSIS OF THE DATA

Year	Month	Day	Time	Location	Remarks
1950	1	1	10:00	1000	1000
1950	1	2	10:00	1000	1000
1950	1	3	10:00	1000	1000
1950	1	4	10:00	1000	1000
1950	1	5	10:00	1000	1000
1950	1	6	10:00	1000	1000
1950	1	7	10:00	1000	1000
1950	1	8	10:00	1000	1000
1950	1	9	10:00	1000	1000
1950	1	10	10:00	1000	1000
1950	1	11	10:00	1000	1000
1950	1	12	10:00	1000	1000
1950	1	13	10:00	1000	1000
1950	1	14	10:00	1000	1000
1950	1	15	10:00	1000	1000
1950	1	16	10:00	1000	1000
1950	1	17	10:00	1000	1000
1950	1	18	10:00	1000	1000
1950	1	19	10:00	1000	1000
1950	1	20	10:00	1000	1000
1950	1	21	10:00	1000	1000
1950	1	22	10:00	1000	1000
1950	1	23	10:00	1000	1000
1950	1	24	10:00	1000	1000
1950	1	25	10:00	1000	1000
1950	1	26	10:00	1000	1000
1950	1	27	10:00	1000	1000
1950	1	28	10:00	1000	1000
1950	1	29	10:00	1000	1000
1950	1	30	10:00	1000	1000
1950	1	31	10:00	1000	1000

(c) ANALYSIS OF THE DATA
 (d) ANALYSIS OF THE DATA

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN MASSACHUSETTS
1917 - 1930.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917-1918	-	-	-	-	-
1919	-	15	\$1,575.00	-	-
1920	-	31	1,877.22	1	\$500.00
1921	-	35	2,434.00	3	1200.00
1922	-	194	3,222.67	-	-
1923	586	470	6,894.90	-	-
1924	1564	980	11,527.04	-	-
1925	873	890	5,554.15	-	-
1926	507	1335	8,302.76	-	-
1927	678	1379	8,459.42	-	-
1928	951	1081	9,443.65	-	-
1929	844	965	10,183.69	-	-
1930	898	656	5,130.50	-	-
Totals	6901	8031	\$74,605.00	4	\$1700.00

SUMMARY OF INDIVIDUAL COOPERATION IN BLISTER
RUST CONTROL WORK IN RHODE ISLAND
1917 - 1930.

Year	No. Individual Cooperators		Amount Spent By Individual Cooperators
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	
1917	-	-	-
1918	-	6	\$550.00
1919	-	-	-
1920	-	-	-
1921	-	-	-
1922	-	-	-
1923	34	1	15.36
1924	-	1	16.00
1925	-	-	-
1926	-	-	-
1927	-	-	-
1928	-	-	-
1929	-	-	-
1930	-	-	-
Totals	34	8	\$581.36

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN CONNECTICUT
1917 - 1930.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917-1921	-	-	-	-	-
1922	-	2	\$760.29	2	\$1727.86
1923	17	9	867.45	1	500.00
1924	29	18	1139.51	1	123.56
1925	-	23	80.00	-	-
1926	13	80	1411.80	1	250.00
1927	3	47	1470.39	2	1000.00*
1928	-	34	1950.64	3	1600.00
1929	133	16	326.75	5	2499.96**
1930	-	41	1333.11****	2	241.50***
Totals	195	270	\$9339.94	17	\$7942.88

*Includes \$500.00 subscribed by individuals in one town.

** " 1424.83 " " " " four towns

*** " 41.50 " " " " two towns

****Includes 76.25 expended by individuals (nurserymen) for cultivated Ribes compensation.

THE UNIVERSITY OF CHICAGO DEPARTMENT OF CHEMISTRY RECORD OF ANALYSES

Name of compound	Molecular weight	Boiling point	Elemental analysis		Calculated
			C, %	H, %	
Acetic acid	60	118	40.0	6.0	40.0
Formic acid	46	107	47.6	4.0	47.6
Propionic acid	74	141	58.2	6.8	58.2
Butyric acid	102	163	62.0	7.7	62.0
Pentanoic acid	130	186	65.0	8.5	65.0
Hexanoic acid	158	205	67.0	9.1	67.0
Heptanoic acid	186	221	68.8	9.6	68.8
Octanoic acid	214	239	70.0	10.0	70.0
Nonanoic acid	242	256	71.0	10.3	71.0
Decanoic acid	270	272	72.0	10.6	72.0
Undecanoic acid	298	287	73.0	10.9	73.0
Dodecanoic acid	326	302	74.0	11.2	74.0

Prepared by the Department of Chemistry, University of Chicago, 1911.

For the purpose of this record, the following definitions have been adopted:

Boiling point: The temperature at which the vapor pressure of the liquid equals the atmospheric pressure.

Elemental analysis: The analysis of a compound to determine the percentage of carbon, hydrogen, and oxygen.

Calculated: The theoretical values for the elements in the compound, based on the molecular formula.

SUMMARY OF INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN NEW YORK
1917 - 1930.

Year	No. Individual Cooperators		Amount Spent By Individual Cooperators
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	
1917	-	-	-
1918	-	2	\$4,772.50
1919	-	5	8,061.91
1920	-	11	2,492.94
1921	-	23	3,330.99
1922	-	38	3,219.90*
1923	-	57	9,548.63
1924	-	161	12,421.29
1925	-	320	14,520.35
1926	-	370	14,268.85
1927	60	714	18,958.55
1928	-	966	23,342.19
1929	-	1105	23,070.80
1930	-	576	15,109.59
Totals	60	4348	\$153,118.49

*Does not include \$3664.20 spent by individuals on
unsupervised Ribes eradication work.

SPECIAL TOTAL SUMMARIES OF RIBES ERADICATION
IN EASTERN STATES.

THE NEW YORK PUBLIC LIBRARY
ASTOR LENOX TILDEN FOUNDATION
1009 5th Ave. New York 10017

SUMMARY OF RIBES ERADICATION WORK IN NEW ENGLAND
AND NEW YORK DURING PERIOD 1917 - 1930.
(By Years)

Year	Acres Eradicated	Ribes Destroyed		Total Cost	Per Acre Values	
		Wild	Cult.		Ribes	Cost
1917	262,562	861,353*	69,514	\$65,481.24**	3.3	\$.371
1918	137,458	2,413,887	22,150	99,388.20***	18.8	.72
1919	252,043	4,549,948	27,877	137,117.05	18.2	.54
1920	270,657	4,243,983	25,936	84,843.80	15.8	.31
1921	376,745	3,191,967	15,755	68,093.70	8.5	.18
1922	476,621	4,849,812	16,061	96,818.37	10.7	.20
1923	892,639	7,969,917	55,074	160,883.87	9.0	.18
1924	1,008,042	9,466,271	73,858	169,175.52	9.4	.167
1925	834,428	7,296,670	59,458	138,491.86	8.7	.166
1926	814,439	8,838,000	51,471	148,382.91	10.8	.182
1927	894,501	8,032,574	48,738	153,302.41	8.9	.171
1928	879,812	6,677,961	58,223	158,006.73	7.6	.180
1929	919,755	7,262,127	74,654	171,294.60	7.9	.186
1930	722,561	7,452,394	30,924	152,060.60	9.1	.210
TOTALS	8,742,263	83,106,864	629,693	1,803,340.86	9.5	.208

*No Ribes figure for Connecticut in 1917.

**No cost figure for Massachusetts in 1917.

***No cost figure for Connecticut in 1918.

NOTE: Connecticut acreage for 1917 omitted in obtaining per acre Ribes figure for 1917 and grand total.
Massachusetts acreage for 1917 omitted in obtaining per acre cost figure for 1917 and grand total.
Connecticut acreage for 1918 omitted in obtaining per acre cost figure for 1918 and grand total.

(Summary does not include special federal projects on National Forests and Parks.)

SUMMARY OF RIBES ERADICATION WORK IN NEW ENGLAND AND NEW YORK 1918-1930 INCL.
(INITIAL AND RE-ERADICATION WORK)

STATE	Year 1918				Year 1919				Year 1920				Year 1921				Totals 1918-1921			
	No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre	
	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost
MAINE	4810	91662	235	577820	9216	330775	-	612610	10283	176788	626	499405	156381	56304	708	339876	180630	658729	1579	1770814
N.H.	6627	552315	8427	2681887	163413	1659226	21171	3298135	304093	2061996	2224	2586498	197827	1654443	7713	2187307	571623	6335690	6157	11623979
VT.	4698	78563	77	511264	2460	96149	-	224226	4501	96294	74	339160	6319	60627	131	346401	17778	272143	886	1232851
MASS.	18206	356667	1918	188631	10849	201112	2374	115618	19389	1224306	1421	1048287	32933	632618	4631	1029054	81877	2414873	10345	4469490
R.I.	12715	12982	452	252787	40411	45320	1657	556974	1450	577810	16	26	36971	16022	552	382692	10345	2414873	10345	4469490
CONN.	100	10000	-	-	2500	21000	0	222394	2170	48792	2	197470	8000	41470	6	266407	13470	125263	8	896211
N.Y.	28227	804153	11000	4367816	23194	281226	2435	7968908	7057	695833	47	2439918	8474	730573	14	2257633	68062	451845	1376	1793493
TOTALS	137458	2412867	22170	9938820	252043	4649908	27877	13717105	270657	4243983	25736	8489880	376745	3191967	15805	6809370	1084903	4499785	91718	38944276

STATE	Year 1922				Year 1923				Year 1924				Year 1925				Year 1926			
	No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre	
	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost
MAINE	10207	449287	2688	801248	326452	1209222	12095	1022316	401227	1846957	11599	2300291	274678	1710015	15041	2025768	304437	3106579	17563	2128001
N.H.	179893	1816829	9061	2870664	268237	3496733	24779	5165148	324468	4027911	14009	5283285	261244	9244882	6402	446197	209585	3107838	4289	4545175
VT.	13512	1578906	812	615029	25190	278570	12202	849648	102154	572	928002	36171	264222	317837	640	905812	22450	257743	1404	10262346
MASS.	64302	1578294	2368	1337509	261221	1776107	10807	2841192	202502	30777	3492278	217126	195201	751830	33610	2175945	189220	1088039	2574	2728137
R.I.	11500	11764	132	184000	160102	14275	1664	189506	52480	247711	2953	230201	25640	4994	1920	151904	28207	17685	203	192423
CONN.	6175	117501	0	465150	208333	248	686314	200206	17218	289034	2407	598173	16106	272197	684	544530	22257	182826	220	506235
N.Y.	11020	654231	0	9408242	15669	906617	267	4422978	1061368	25198	1061368	25198	4090702	994865	1153	3578736	38073	1077340	2087	3712976
TOTALS	476621	4800012	16061	9681837	20107	892639	766917	53074	1600087	946627	773858	1647552	16794	7296670	5945	1849186	814439	8330005	5471	4238291

STATE	Year 1927				Year 1928				Year 1929				Year 1930				Totals 1922-1930			
	No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre		No. Ribes		Per Acre	
	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost	Acres	Wild	Cult.	Total Cost
MAINE	261401	260139	10225	225173	203067	1595792	8778	2259790	233543	2090340	18244	2093878	195244	1984994	10573	1945149	2400373	15541241	107805	17199226
N.H.	225773	2460816	2510	4097911	228530	2302328	5220	4084496	252144	2102499	6644	4060940	223303	2044880	3471	4874611	2177187	25613992	77091	3944327
VT.	19405	280781	314	823895	16767	159340	166	68637	110671	453	64547	4088	64547	94701	108	594622	176306	1863103	5753	7085226
MASS.	294228	903584	31752	2572642	239033	521360	31015	2642859	31646	2972973	115	33	135988	1024641	8284	1845715	173104	10504934	21874	22594750
R.I.	9735	22279	521	170086	21461	17777	615	262964	-	-	-	-	-	-	-	-	180331	113475	7816	1381174
CONN.	20904	152825	1208	68320	75105	123385	1364	801204	1982671	10922	803454	23239	414586	1455503	4324	5323212	251007	1628811	21441	5851911
N.Y.	62955	1410646	2207	4552396	95049	1877769	10225	5060543	127756	1982671	6745	6546648	1071263	1455503	4324	5323212	518520	11501040	25819	4046433
TOTALS	894301	8032574	48738	15330241	879812	6677961	58223	15800673	919755	7262127	74654	17129460	18679	7452394	30924	15206060	71442748	10715764	13984687	18191

STATE	Grand Totals 1918 - 1930		
	Acres	No. Ribes	Per Acre
MAINE	2580973	17253570	109384
N.H.	2748812	31949682	138608
VT.	194284	2155846	6035
MASS.	1820981	12924807	229081
R.I.	283592	194677	12067
CONN.	264477	1754074	21449
N.Y.	586582	16012855	43555
TOTALS	8479701	82245511	560179

Note: - This summary does not include any special black currant eradication work or special nursery sanitation projects for which no acreage figures were available.

SUMMARY OF RIBES ERADICATION WORK IN LAKE STATES AND PENNSYLVANIA 1918-1930 INCL. (INITIAL AND RE-ERADICATION WORK)

STATE	YEAR - 1918						YEAR - 1919						YEAR - 1920						YEAR - 1921						TOTALS 1918-1921					
	Acreage		No. Ribes		Total Cost	Per Acre Cost Ribes	Acreage		No. Ribes		Total Cost	Per Acre Cost Ribes	Acreage		No. Ribes		Total Cost	Per Acre Cost Ribes	Acreage		No. Ribes		Total Cost	Per Acre Cost Ribes	Acreage		No. Ribes		Total Cost	Per Acre Cost Ribes
MICHIGAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MINNESOTA	1200	90,000	-	3000.00	250.75	2440	156,304	-	5596.66	2,246,410	677	120,297	118	5160.03	7,621,773	589	39,773	-	397.18	875.675	4906	406,374	118	14,154.47	2.89	82.8				
PENNSYLVANIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WISCONSIN	220	24,000	-	500.00	227.091	75	5844	-	138.59	139,780	10,995	775,576	-	5708.24	519,705	8887	457,074	19	5620.84	405.514	20,177	1,262,494	19	9967.67	494	62.6				
TOTALS	1420	114,000	-	3500.00	246.803	2515	162,148	-	5735.25	2,286,193	11,672	895,873	118	10,868.27	931,767	9476	496,847	19	4018.62	424.524	25,083	1,668,868	137	24,122.14	9.62	6.5				

STATE	YEAR - 1922				YEAR - 1923				YEARS 1924 AND 1925				YEAR - 1926				YEAR - 1927			
	Acreage	No. Ribes		Per Acre Cost Ribes	Total Cost	Acreage	No. Ribes		Per Acre Cost Ribes	Total Cost	Acreage	No. Ribes		Per Acre Cost Ribes	Total Cost	Acreage	No. Ribes		Total Cost	Per Acre Cost Ribes
		Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.		
MICHIGAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MINNESOTA	75	904	-	25.70	342.120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PENNSYLVANIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WISCONSIN	4770	530,953	5	3007.94	630,113	3347	204,043	-	2671.98	788,610	-	-	-	-	-	208	51,878	-	700.00	336.2444
TOTALS	4845	531,857	5	3033.64	676,108	3347	204,043	-	2671.98	788,610	-	-	-	-	-	208	51,878	-	700.00	336.2444

STATE	YEAR - 1928						YEAR - 1929						YEAR - 1930						TOTALS 1922 - 1930						GRAND TOTALS 1918 - 1930					
	Acreage	No. Ribes		Total Cost	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes	Acreage	No. Ribes		Total Cost	Per Acre Cost/Ribes						
		Wild	Cult.			Wild	Cult.				Wild	Cult.				Wild	Cult.				Wild	Cult.			Wild	Cult.				
MICHIGAN	1500	82,788	263	759.32	443,552	2570	170,982	341	3607.63	1,406,665	6578	373,016	440	5161.94	785,567	10,648	626,786	1044	4508.89	893,58.9	10,648	626,786	1094	4508.89	893,58.9					
MINNESOTA	-	-	-	-	-	-	-	-	-	-	1466	79,877	13	856.94	584,545	1541	80,781	13	882.64	573,52.4	6,447	487,155	131	15,037.11	2,33,75.6					
PENNSYLVANIA	-	-	-	-	-	4978	306,650	553	3557.96	712,61.3	12,631	664,016	863	9139.11	723,52.6	17,629	970,666	1416	12,697.07	720,55.1	17,629	970,666	1416	12,697.07	720,55.1					
WISCONSIN	347	79,861	-	1045.85	3,012,301	180	18,744	-	771.05	4,281,04.1	491	164,485	-	969.10	1,971,330	9593	1,092,190	5	10,278.16	1,07,113.8	29,770	2,354,684	24	20,245.83	680,79.1					
TOTALS	1847	162,649	263	1785.17	9,668,88.1	7748	496,376	944	7936.64	1,021,64.1	21,166	1,281,344	1316	16,127.09	762,605	39,411	2,770,423	2528	33,366.76	847,70.3	64,494	4,439,291	2665	57,488.90	891,68.8					

NOTE:- THE WISCONSIN DATA FOR 1922 DO NOT INCLUDE WORK DONE ON EAU GALLE EXPERIMENTAL AREA WHERE 732 ACRES WERE CLEARED OF 24,845 RIBES AT A COST OF \$511.78.
THE SPECIAL BLACK CURRANT ERADICATION WORK PERFORMED IN MICHIGAN DURING 1929 AND 1930 IS ALSO EXCLUDED FROM THIS SUMMARY.

